U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS—MILTON WHITNEY, Chief.

SOIL SURVEY OF HORRY COUNTY, SOUTH CAROLINA.

BY

B. W. TILLMAN, IN CHARGE, W. E. McLENDON, H. H. KRUSEKOPF, A. C. ANDERSON, CORNELIUS VAN DUYNE, AND W. J. LATIMER.

W. EDWARD HEARN, INSPECTOR, SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1918.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1920.

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Soils,
Washington, D. C., July 30, 1919.

Sir: I have the honor to transmit herewith the manuscript report and map covering the survey of Horry County, South Carolina, and to recommend that they be published as advance sheets of Field Operations of the Bureau of Soils for 1918, as authorized by law.

Respectfully,

Milton Whitney,
Chief of Bureau.

Hon. D. F. Houston,
Secretary of Agriculture.

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SOIL SURVEY OF HORRY COUNTY, SOUTH CAROLINA.

By B. W. TILLMAN, In Charge, W. E. McLENDON, H. H. KRUSEKOPF, A. C. ANDERSON, CORNELIUS VAN DUYNE, and W. J. LATIMER.—Area Inspected by W. EDWARD HEARN.

DESCRIPTION OF THE AREA.

Horry County lies in the northeastern corner of the State of South Carolina, with a frontage of about 50 miles on the Atlantic Ocean. North Carolina forms the boundary on the north. The county has a length and breadth of approximately 34 miles. Its total area is 705,920 acres, or 1,103 square miles.[1]

Physiographically, the county consists of a low plain whose general elevation lies between 25 and 50 feet above sea level, traversed by a number of shallow, moderately broad valleys. The upland comprises about nine-tenths of the area. It is predominantly level to gently undulating, with included small flat areas. A few of these represent swamps, such as that in the vicinity of Little River. This condition is typical of extreme youth in topographic development. The upland has a range in elevation of only about 40 feet, and is nowhere more than 85 feet above sea level. In some parts of the eastern half of the county there are numerous depressions, which give rise to a more rolling topography.

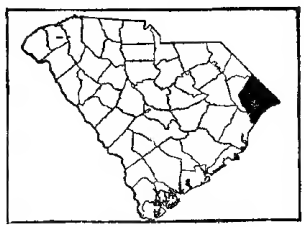

FIG. 1.—Sketch map showing location of Horry County area, South Carolina.

The valleys of the Waccamaw, Great Peedee, Little Peedee, and Lumber Rivers are level, swampy, and broad, but narrow strips of bottom land reach far into the upland along the smaller streams. The bottom land is generally flat and poorly drained, and often swampy, but in places there are low ridges or swells. All the bottom land is subject to overflow. The streams are sluggish and meandering. Their flood plains are wide, considering the size of the streams.

The area included in the present survey has two main drainage systems, those of the Waccamaw and Peedee Rivers. The Waccamaw River occupies a deep channel and is surrounded by broad, flat bottoms containing numerous sloughs. The extreme northeastern part

[1] The western half of the county was surveyed in 1909 by W. J. Latimer and Cornelius Van Duyne. This survey was revised in 1919 by W. E. McLendon and Cornelius Van Duyne.

of the county is drained by the Little River, and most of the western half by the Little Peedee River, which, with the Lumber River, forms the western boundary. On account of the sluggish character of the streams their channels are not being deepened appreciably. The slopes from the upland to the bottoms, which lie from 3 to 15 feet lower, are gradual. On account of the flat surface over large areas many of the drainage ways are poorly established, and the regional drainage of much of the county is poor. It can be improved by the construction of canals to near-by streams. There are small, poorly drained areas in all parts of the county. In general, the northwestern and eastern parts are better drained than the rest. Most of the small streams have enough fall to furnish water power, and numerous mills are operated at points where the streams descend from the uplands to the bottoms.

The upland was originally forested with a heavy growth of pine and some hardwood species, largely oak and gum. Most of the forest growth has been removed, but there are still extensive areas of merchantable timber, the bottoms, in particular, containing large and valuable stands of pine, cypress, and gum. Very little of the hardwood has been removed.

At the time of the Revolution there were very few residents in this region, but immigration from other parts of the State occurred soon after the end of the war. The early settlers were largely English, French, Scotch, and Irish. From 1820 to the time of the Civil War there was a notable increase in the population, and decided agricultural progress was made in the southern part of the county in the vicinty of Murrell Inlet, where the growing of rice under the plantation system became an important industry.

The present population is largely of English extraction. About 25 per cent is colored, the colored population being confined mostly to the vicinity of Conway, Bucksport, and Little River. A large number of settlers came from North Carolina with the introduction of the turpentine industry, a few years prior to the Civil War, and many more came from that State after the construction of the railroad to Conway, to engage in lumbering. The total population of the county in 1910 was 26,995. This is all classed as rural by the census, there being no town of 2,500 population. There is an average of 23.3 persons to the square mile. The population is quite evenly distributed, except in the bottoms and in a large area southeast of Conway, where the soil is mainly sandy and unproductive.

Conway, the county seat, had a population of 2,200 in 1910. It is the chief distributing point for supplies in the county. It has large lumbering interests and is a good cotton, tobacco, and strawberry market. It is situated on the Waccamaw River, which is navigable

to the sea, and is also the terminus of the Elrod & Conway Branch of the Atlantic Coast Line Railroad. Another branch of the Atlantic Coast Line Railroad extends from Conway to Myrtle Beach, a summer resort on the Atlantic Ocean, and to Aynor, a point 15 miles northwest of Conway. Loris, about 20 miles north of Conway, is a thriving tobacco and strawberry market. Little River, situated on Little River Inlet, is an important distributing point for products shipped by boat on the Atlantic Ocean. Other small towns include Sanford, Gurley, Wampee, Longs, Allen, and Adrian. Bucksport, near the southern end of the county, is situated at the head of deep-water navigation.

Shipping facilities are good in the central part of the county, but poor in the northeastern and southwestern parts. The Elrod & Conway Branch of the Atlantic Coast Line Railroad, which crosses the Columbia & Wilmington Branch at Chadbourne, N. C., and connects with the main line at Elrod in Robeson County, N. C., affords direct connection with such important markets as Washington, Baltimore, Philadelphia, New York, and Boston. The Waccamaw Line of steamers plies between Conway and Georgetown and gives an outlet for lumber, cotton, and other products.

A few of the main roads of the county are well graded, but the highways in general are poor, despite the abundance of good road-building material and the generally level, unbroken surface. The fine sandy loam soils have a tendency to pack and make excellent roads that can be kept in good condition by the use of the road drag. The roads in the sandy areas need to be clay surfaced, and only a small mileage has been so treated. At present the roads are not systematically dragged. The bridges in most sections are insufficient in number and poorly constructed.

Most of the rural districts are supplied with telephone service, and rural mail delivery routes reach all parts of the county.

CLIMATE.

The climate of Horry County is typical of that of the southern Atlantic Coastal Plain region. The county is bordered by the ocean, and the Gulf Stream is only about 50 miles offshore. To this is due a higher winter temperature than that prevailing farther inland. Exceedingly cold weather is exceptional and of short duration. The winter season is short, and the ground rarely freezes to the depth of more than an inch. Snow seldom falls and soon melts.

The mean annual temperature as recorded at Conway is 63.6° F. The mean for the winter months, December, January, and February,

is 47.8°, and for the summer months, June, July, and August, 78.8°. The mean annual precipitation is reported as 50.42 inches. The rainfall is distributed throughout the year, but is heaviest during the summer. Serious droughts are rare, and the danger of injury to crops is rather from excessive rainfall, resulting in floods, than from insufficient moisture supply.

The average date of the last killing frost in the spring is March 19, and that of the first in the fall, November 8. This gives a growing season of 234 days. In general, the climate is such that a wide variety of crops can be grown, and two or three crops can be matured annually on the same land. The climate is especially well suited for trucking. The latest killing frost on record in the spring occurred on April 21, and the earliest recorded in the fall, on October 27.

The following table, compiled from the records of the Weather Bureau station at Conway, gives the normal monthly, seasonal, and annual temperature and precipitation:

Normal monthly, seasonal, and annual temperature and precipitation at Conway.

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year (1911).	Total amount for the wettest year (1908).
	°F.	°F.	°F.	*Inches.*	*Inches.*	*Inches.*
December	47.9	79	14	3.20	2.72	2.89
January	48.1	89	0	3.41	1.44	2.60
February	47.3	80	17	4.59	.79	7.33
Winter	47.8	89	0	11.20	4.95	12.82
March	56.8	96	23	3.70	3.09	5.06
April	62.8	92	27	2.91	1.19	4.63
May	71.9	99	39	3.36	.48	2.13
Spring	63.5	99	23	9.97	4.76	11.82
June	77.1	103	45	5.07	3.84	5.15
July	80.1	104	53	6.49	5.48	11.15
August	79.3	101	51	7.06	9.63	8.21
Summer	78.8	104	45	18.62	18.95	24.51
September	74.8	101	45	4.85	5.70	4.00
October	64.2	95	29	3.50	3.20	9.42
November	54.1	84	15	2.28	2.66	1.24
Fall	64.4	101	15	10.63	11.56	14.66
Year	63.6	104	0	50.42	40.22	63.81

AGRICULTURE.

The first settlements in Horry County apparently were made in the southern part, along the Atlantic Ocean. Comparatively little agricultural progress was made in the county as a whole until after the decline of the turpentine and lumbering industries, about 1880. The first crops, in addition to vegetables and fruits, were rice, corn, wheat, and potatoes, grown for home consumption. Cattle, hogs, sheep, and poultry were introduced by the early settlers, but little attention was given to live-stock production. All the stock grazed on the open range, where native grasses were abundant. Cotton was grown to a small extent and made into clothing at home. The whole of Horry County originally supported a heavy growth of pine, with some hardwoods in the bottom lands. Lumbering is still a very important source of income and will continue to be so on some of the soils, particularly the St. Johns fine sand. Most of the soils, however, will be devoted to agriculture after the present growth of timber is removed, which, according to local estimates, will be within 10 or 12 years.

An idea of the development of the agriculture of the county between 1880 and 1910 may be had from the following table, showing the acreage and production of the principal crops as reported by the last four censuses.

Acreage and production of principal crops, 1879 to 1909.

Year.	Corn.		Cotton.		Sweet potatoes.		Tobacco.		Rice.		Oats.		Cowpeas.	
	Acres.	Bushels.	Acres.	Bales.	Acres.	Bushels.	Acres.	Pounds.	Acres.	Pounds.	Acres.	Bushels.	Acres.	Bushels.
1879.....	13,391	103,895	1,773	809	2,177	155,886	19	7,251	1,781	747,689	157	1,057	.....	.....
1889.....	22,055	200,378	9,136	2,808	2,731	183,690	58	21,550	664	142,461	810	9,206	.....	9,789
1899.....	31,690	332,130	12,456	5,606	3,164	252,175	2,087	1,631,930	1,945	666,454	1,122	17,150	2,191	26,273
1909.....	32,723	457,857	17,772	9,513	3,333	291,089	5,347	4,474,183	79	1,210	1,473	29,975	5,059	12,566

Corn has been the most extensively grown crop in Horry County from the earliest times. Its acreage, as well as that of oats, cotton, sweet potatoes, and tobacco, shows an uninterrupted increase, corresponding in general to the rate of progress in clearing the cut-over lands. The acreage in rice, on the other hand, has fallen off to practically nothing. The rice industry reached its maximum development before the Civil War. Many of the fields were not reclaimed after the war. Greater returns obtained from other crops and competition with the firmer rice soils of Louisiana, Arkansas, and Texas have been the chief factors in the decline of rice growing in South Carolina.

Agriculture in Horry County at present consists of the production of corn, cotton, tobacco, and to a less extent, vegetables, as money crops. A large part of the corn, however, is used locally to supply the home and to feed and fatten stock. The principal sources of agricultural wealth are shown in the following table, which gives the total acreage and the total value of the crops by classes and also the value of the live-stock products. Although the data are for 1909, the relationship of the various items is practically the same at present, except in case of tobacco, the acreage of which has increased disproportionally.

Value of principal crops and live-stock products.

Crops by classes.	Acreage.	Value.	Crops by classes.	Acreage.	Value.
		Dollars.			*Dollars.*
Cereals	34,343	477,558	Tobacco [1]	5,347	671,127
Hay and forage	2,545	37,862	Cotton [1]	17,772	951,300
Vegetables	4,382	229,195	Live stock and products		296,540
Fruits and nuts		93,534	Total		2,795,052
Other grains and seeds	6,992	38,136			

[1] Tobacco is valued at 15 cents a pound and cotton at 20 cents a pound.

The acreage of corn is almost equal to that of all other crops combined. The average yield in 1909 was approximately 14 bushels per acre. The crop is usually harvested by snapping the ears, leaving the stalks in the field to be pastured off during the winter. The more progressive farmers sow velvet beans, cowpeas, or peanuts between the corn rows at the last cultivation or plant alternate rows of corn and one of these legumes at the time of putting in the main crop. This not only gives pasturage of much better quality, but also is a very satisfactory way of building up the soil, and should be more extensively practiced. The corn grown is mostly of native white sorts of no particular variety, and little attention is given to the selection of seed.

Cotton, which ranks next to corn in acreage, is the principal cash crop. The census reports the area in cotton in 1879 as 1,773 acres, and in 1909 as 17,772 acres, but, notwithstanding this marked increase, cotton is not grown as exclusively as in other parts of the cotton belt.

About 1895, after the price of cotton had been severely depressed for some time, the farmers began the growing of bright-yellow tobacco on a commercial scale. The growth of the industry is apparent from the increase in the planted area from 58 acres in 1889 to 2,087 acres in 1899. By 1909 the area in tobacco had increased to 5,347 acres, with a production of 4,474,183 pounds. While no ac-

curate estimates are obtainable, it is known that the present acreage in tobacco is much larger than in 1909, the industry having been stimulated greatly by the high prices prevailing since the outbreak of the European war. Some estimates place the present acreage above that of cotton. The current prices range from 15 to 25 cents a pound. Under present conditions tobacco is the most profitable crop that can be grown, with the possible exception of cotton, whose price has also advanced 100 per cent over the normal antewar price. The profits realized from tobacco in 1917, according to reports by farmers, ranged from $100 to $250 an acre. The crop is grown more or less generally over the county by small farmers who live on their farms and superintend the work.

Strawberry growing on a commercial scale began about 1898. The industry was first important in the vicinity of Homewood, but it spread rapidly in the section adjacent to the railroad. The area in strawberries increased from 4 acres in 1899 to 496 acres in 1909. Strawberry production reached its maximum development about 1912, but since that time has declined, owing apparently to no cause except a lack of leadership in marketing. The industry is still important, but there are few fields more than four acres in extent. The leading varieties grown are the Missionary, Klondike, and Lady Thompson. The price during the present season (1918) ranged from $7.50 a crate down to $4, depending on the time of maturity. Growers usually expect a profit of $200 to $350 an acre. The shipping season begins early in April and ends about the 1st of June. The berries usually are sold direct to buyers, but in a few cases they are consigned to commission houses. Boston and New York are the principal markets.

The production of sweet potatoes is of considerable importance, the area devoted to this crop having increased from 2,177 acres in 1879 to 3,333 acres in 1909. The acreage is larger now than in 1909. The production in 1909 was 291,089 bushels.

The production of Irish potatoes has increased materially as a result of the present demand for food products. The center of production is in the vicinity of Myrtle Beach, one farm near that place having over 300 acres devoted to the crop. Nearly every farmer plants 2 to 10 acres of potatoes. Growers estimate the profit in this crop from $100 to $150 an acre. Nearly all the crop is shipped to the large markets of the East. Most of the crop in the vicinity of Myrtle Beach is grown on artificially drained Bladen clay and the Bladen loam, and the results may be taken as a fair indication of the value of these soils when reclaimed.

Oats are grown in all parts of the county for feed, but scarcely any of the crop is thrashed. The demand for oats is not met, and

considerable quantities are shipped in annually from northern points. The crop is well suited to the soils and climatic conditions, and yields of 50 to 60 bushels per acre have been obtained, although the average is much lower. Winter oats are most successful.

Wheat has never been an important crop in Horry County. The largest acreage reported by the census was in 1899, when the crop occupied 39 acres. The acreage at present is somewhat larger than this, probably as much as 300 acres being sown this season (1918). Wheat yields, on the average, about 15 bushels per acre. A flour mill has been completed at Conway to take care of the prospective crop. Some of the farmers predict an expansion of wheat growing as a result of the success of the present crop, but it seems extremely doubtful whether wheat can be grown on a commercial scale in competition with other sections of the United States after prices return to their normal level. At present there is no machinery to handle the crop, and farmers have to rely on hand implements.

Sugar cane and sorghum are grown throughout the county and made into sirup for home consumption. Peanuts are extensively grown in some sections as a hog feed. Garden vegetables are grown on every farm for home use and to some extent for sale on the local markets.

The census reports 2,130 tons of hay produced in 1909, as against 95 tons in 1879. The hay crop consists mostly of crab grass, peavine, and small grains cut green. The hay is usually stacked near the feed lot and fed from the stack as needed. The local demand for hay is not supplied, and large quantities of timothy are shipped into the county each year.

Velvet beans are grown by many farmers to supply winter forage, and the results with this recently introduced crop are promising. They are usually grown in alternate rows with corn. A few farmers grind velvet beans and corn in equal parts and use the mixture as a feed for work stock. It is regarded as an excellent substitute for corn alone and is much cheaper. Velvet beans are usually planted about the same time as cotton. The yield of corn after velvet beans exceeds that on fields previously in corn by as much as 20 bushels an acre. Similar results have been obtained with cowpeas and soy beans, and their acreage is likewise increasing. There is apparently no preference between these crops for soil improvement, but the cowpeas make better hay. There is some difficulty, however, in getting the peas to fruit, and also in saving a good quality of hay, on account of the frequent rains in summer and fall. The California Black Eye seems to be the most dependable variety where seed is desired. In general, soils that have grown corn successfully give good results with cowpeas, velvet beans, and soy beans. The last

named crop seems to do better on poorly drained soils than cowpeas and also withstands dry weather better. Soy beans can be grown in many systems of rotation. Besides its value for feed and forage the soy bean has value as a source of oil, and it is being grown extensively in other sections as an oil crop.

Summer fruits are grown on nearly all farms for home use, and small quantities are sold. The census of 1910 reports 11,881 apple trees in the county, 11,423 peach trees, 2,843 pear trees, 792 plum trees, 418 fig trees, and 510 nut trees, the latter yielding 29,808 pounds in 1909. The fruit and nut trees are not given systematic care, and the fruit crops as a rule are more or less curtailed by insects and by fungous diseases. The peach tree borer and pear blight are among the most serious pests.

The animal industries have been of only secondary importance in this county, notwithstanding the generally favorable conditions. The presence of the Texas fever tick has restricted both the raising of cattle in large numbers and the improvement of the quality of the animals, but this pest is being actively combated. The opinion prevails in parts of the county that the importation of improved live stock from northern States is to be discouraged on account of the great loss due to the unfavorable climate, but experience shows that the losses sustained have almost invariably been due to the ravages of tick fever and that where the animals are kept free from this pest and are given ordinary care they are as healthy as in other sections of the country.

The value of live stock sold or slaughtered in 1909 amounted to $221,462. The value of the dairy products in that year, excluding those used in the home, was $6,895, and the value of the poultry and eggs produced was $66,957. The census reports the numbers of live stock sold or slaughtered as 1,416 head of cattle, 26,862 hogs, and 552 sheep and goats.

Hogs are the principal source of income from live stock. The grade of hogs in general is ordinary, there being only a few of better breeding. The production of pork products has been severely retarded by the prevalence of cholera. Large numbers of animals are lost annually, and control is difficult on account of the absence of stock laws and the prevailing custom of allowing stock to range at large. In seasons when food is scarce large numbers perish from starvation. The hogs are occasionally fed corn, to keep them tame, and are rounded up in the fall to be fattened a few weeks on corn or sweet potatoes before being slaughtered for home use or sold on the local market. Usually the animals are two to three years old before they reach a marketable size. The inefficient methods are a serious drawback to the hog-raising industry, for the development of which the soils, crops, and climatic conditions are well suited.

The cattle, like the hogs, are mostly scrub stock. Dairying is practically neglected, and there is no systematic feeding of cattle for market. No great development in dairying and cattle raising is possible until the cattle tick is eradicated and the quality of the native cows improved. There are no creameries in the county, but a few cows are milked on each farm to supply the home. The introduction of pure-bred sires of the dairy breeds and the more extensive production of feed at home are the first essentials for the expansion of the dairy industry.

The horses used on the farms are small. The mules, in general, are larger and of better quality. On some of the more prosperous farms large mules of excellent quality are used. These are practically all imported from Kentucky and other more northern States. Probably not over 10 to 12 are produced annually in the county, and these are usually small, owing to the lack of large brood mares.

Poultry is kept on all the farms and constitutes an important source of income. Between 1900 and 1910 the annual value of the poultry products increased from $40,386 to $66,957. There is a good local demand for poultry products which is generally supplied, although there are no specialized poultry farms.

Many farmers recognize in a general way the adaptation of certain soils to particular crops. Cotton makes a good growth on nearly all the soils in favorable seasons, but it does best on types of the Norfolk and Dunbar series. Corn does best on the Portsmouth loam and fine sandy loam and on the Bladen soils. Some areas of the Coxville soils are known to be well adapted to corn. Nearly all the tobacco is grown on the Norfolk, Dunbar, Marlboro, and Ruston soils. While the crop makes a larger growth on the Bladen, Portsmouth, and Coxville soils, it lacks the quality of leaf produced on the other soils. Although many farmers recognize these differences in the soils, nearly all the staple crops are grown indiscriminately on most of the soil types.

Farm equipment in Horry County is inadequate. Two-horse teams are rare, most of the plowing being done with one mule or ox. A few disk harrows have been introduced, but they are not in common use. There are a few mowing machines and rakes, and corn planters are used in increasing numbers. Tobacco is still transplanted by hand. The most up-to-date machinery and the best methods of cultivation are found in the vicinity of Myrtle Beach; outside of that district the plowing, for instance, is seldom more than 2 to 3 inches deep.

Land for cotton or corn is generally bedded just before planting. Practically all the cultivation of crops is done with one-horse plows and sweeps. Nearly all crops are given ridge cultivation. In the

flatter parts of the county winter plowing is impracticable under the present poor drainage conditions. Winter cover crops are not grown, and green manuring is not practiced to any important extent. In a general way it is understood that crops should be planted on a ridge in poorly drained soil and in a furrow on dry ground, but little difference is observable between the cultural practices on wet and dry land, or on heavy and light soils.

Methods of fertilization vary greatly with different planters. As a rule, in the past corn has received from 200 to 400 pounds per acre of an 8–2–2 or 8–3–3 mixture. In some areas of the Bladen clay and the Portsmouth loam no fertilizer is used on corn. Cotton usually receives from 500 to 1,000 pounds, and tobacco from 800 to 1,200 pounds of the same mixture as that applied to corn. In the last few years, however, the potash constituent in the fertilizer has rarely exceeded one-half of 1 per cent, and many of the mixtures at present contain no potash. From 50 to 250 pounds of nitrate of soda is frequently applied as a top dressing for corn, oats, and wheat, and 200 pounds of acid phosphate is sometimes applied in addition to the regular fertilizer. Strawberries usually are given 1,200 to 1,500 pounds per acre of an 8–2–3 fertilizer, in three equal applications, after the picking season, in September, and in January. A 500-pound application of an 8–2–2 mixture in the fall and a similar one in February have also proved beneficial in growing strawberries. Barnyard manure is frequently used on tobacco, in addition to a similar application of fertilizer. Distributors are commonly used in fertilizing, although many farmers still distribute the fertilizer by hand.

Although there is no lack of channels, Horry County in general has very poor drainage. This is due primarily to the inadequate connection between the wet, flat areas and the drainage channels and to the inability of the drainage ways to remove the water after it has reached them. The drainage outlets are usually sluggish branches or swamps, from 30 to 1,000 yards wide, and generally with no definite channel. Where a drainage course has a channel of appreciable size it is almost invariably choked with logs, trees, bushes, and all manner of débris. The branches are overgrown with thickets of water-loving trees such as gum, maple, ash, and cypress, through which the water finds its way slowly, and during freshets the water soon covers the entire ground from hill to hill. The surrounding land is damaged, as the adjoining areas are kept wet and sour. The cleaning out of these swamps would undoubtedly help conditions considerably, but to provide satisfactory drainage over large areas of the most fertile soil in the county, the water table must be lowered by the construction of deep ditches. The swamps usually have a sufficient fall and can easily be drained, but the bays and flat areas

in which the swamps rise are more difficult to reclaim on account of the depressed or level surfaces. Thousand of acres of land valued only for grazing would, if drained, become exceedingly valuable for agriculture, and their improvement would incidentally benefit the general health of the community, particularly by removing the breeding places of mosquitoes which spread malaria. While there are still many isolated fields which can be drained through individual effort, the only means of reclaiming many large areas is through cooperation among the landowners or through State or county projects.

Farm improvements in Horry County, with few exceptions, are poor and in many instances do not give a true impression of the degree of prosperity. Labor is still cheap, which accounts for the lack of increased use of horse-power and modern machinery. Farm labor is somewhat scarce at this time, owing to the abnormal demand in factory centers and local lumber mills. Strawberries are picked mainly by negroes, who receive customarily 1 cent a quart. Negro men receive 75 cents to $1.25 a day for heavy farm work, while negro women are paid 50 to 65 cents a day for such work as hoeing cotton. In some sections of the county nearly all the farm help is white. Hands hired by the month are paid $15 to $20 and given the use of a house and garden. An expenditure of $123,844 for labor in 1909 is reported by the census. This is an average of $88.70 for each of the 1,397 farms reporting.

Approximately 58 per cent of the area of Horry County is in farms, the number of which in 1910 amounted to 3,627. The average size of farms is given in 1910 as 117.8 acres, as compared with 244 acres in 1880. This does not indicate accurately the average size of land holdings, as in the census each tenancy is classed as a farm. Of the farm land of the county only 20.7 per cent, or an average of 24.3 acres per farm, is improved.

According to the census of 1910, 72.9 per cent of the farms are operated by owners, 27 per cent by tenants, and 0.1 per cent by managers. Land is generally rented on the share system, under which the landowner furnishes the fertilizer and the tenant the stock and implements, the proceeds of the crops being shared equally. In some instances the owner supplies only the land and receives one-third of the corn and one-half the cotton.

At present the selling price of improved farms ranges from $20 to $50 an acre, depending on the location with reference to towns and the improvements. The Bladen soils near Myrtle Beach which have been artificially drained have a higher value than this. Cut-over timber areas on all the important soil types can be bought for $3 to $8 an acre. The average value of good farming land with clearings of 30 to 40 acres on 100-acre tracts is between $15 and $30 an acre.

SOILS.

Horry County lies within the flat, imperfectly drained coastal portion of the Coastal Plain. It is underlain by horizontal beds of sand, silt, clay, gravel, and marl not yet consolidated, belonging to the most recent marine deposits of the Coastal Plain. The marl beds lie beneath the beds of the other materials and do not outcrop within the county in areas sufficient to permit the development of soils.

The upland soils of the county have been derived from the deposits mentioned above, and aside from texture, which is dependent mainly on the original character of the deposits, the differences between the soils are due to varying degrees of drainage and oxidation that have taken place since the deposition of the material. The texture of the soils is thus dependent upon that of the original deposits except where it has been modified in the surface few inches by the removal, through erosion, of the finest soil material, making this horizon slightly lighter in texture than would have been the case had no such modification taken place.

The topographic control of soil characteristics other than texture, is well shown in Horry County, as elsewhere in the lower Coastal Plain. The topography, as stated above, consists of a flat plain broken by shallow valleys, those along the larger streams being wide. The whole county therefore is flat, except in belts, usually narrow, lying along the uplands where they border on the river valleys. These valley-border belts are the best drained portions of the county with the exception of certain very low sand ridges. They are most completely drained immediately along the valley boundaries. The drainage becomes progressively less perfect inland, until in axial belts between the streams the surface drainage varies from poor to almost entirely lacking.

The soils developed under conditions of adequate surface drainage occur, therefore, in strips along the valley boundaries, and those developed under conditions of imperfect drainage occur along the flat uplands between the streams. To the former class belong those members of the Norfolk, Ruston, and Orangeburg series which occur in this region. The soils developed under the most poorly drained conditions existing in the county are the members of the Portsmouth and St. Johns series. Intermediate between these two extremes lie such soils as the Coxville, Dunbar, Bladen, and Leon.

The Portsmouth soils consist of the original parent material, practically unchanged by oxidation or leaching, on the surface of which a layer of partly decomposed vegetable matter has accumulated on account of the presence of moisture enough to prevent complete decomposition. This material lies mainly on the surface of the soil

rather than in it and disappears rapidly on artificial drainage, but enough remains to cause these soils to appear for long periods darker in color than the other soils of the county. The Coxville soils, on account of their imperfect drainage, have accumulated a small amount of organic matter, but in other respects they consist of the original parent material with very little modification by oxidation. The Bladen soils do not differ essentially from the Coxville in this respect.

The well-drained soils have a very low percentage of organic matter, either on the surface or in the soil mass. Their subsoils are oxidized to uniform yellow or red colors.

The alluvial belts are, as a whole, poorly drained and are subject, in addition, to frequent overflows.

The Norfolk series is characterized by the light-gray to grayish-yellow color of the surface soils and the yellow color and friable structure of the sandy or sandy-clay subsoil. It differs from the Dunbar series in the absence of red mottling and in its more friable subsoil.

The Orangeburg and Ruston series are similar in character of the surface soil, which is gray to brownish gray, but differ in color and structure of the subsoil. The Orangeburg subsoil is deep blood-red in color, and the Ruston reddish yellow or yellowish red. The Orangeburg subsoil is more friable than that of the Ruston, although the latter is by no means plastic like the Coxville subsoil.

The Dunbar series grades between the Norfolk and the Coxville. It differs from the Norfolk in its mottled and heavier structured lower subsoil. It is less plastic than the Coxville and is also better drained. The subsurface soil is very similar to that of the Norfolk series.

In the Coxville series the soils are gray to dark gray, with a mottled gray and yellow or gray subsurface layer and a mottled gray, yellow, and red heavy plastic clay subsoil. The topographic position is intermediate between that of the Dunbar and Portsmouth series.

The Bladen series includes types with black to brownish soils and drab or mottled drab, gray, nearly brown, and yellow subsoils of plastic structure. The Bladen soils occupy flat, depressed areas and have poor drainage.

The types in the Portsmouth series are composed of dark-gray to black soils and drabbish-gray to yellowish-gray subsoils. The members of this series are poorly drained, but are very productive when reclaimed. Their occurrence in depressions has resulted in the rapid accumulation of organic matter.

The Marlboro series is closely related to the Dunbar and the Coxville, being less plastic than these but characterized by a very com-

pact subsoil. There is less mottling in the subsoil than in the Dunbar and Coxville series. The surface soil and subsurface layer resemble those of the Norfolk soils in drainage conditions. The surface soil grades between that of the Dunbar and Norfolk series.

The Leon series includes types with a light-gray surface soil, underlain at 22 to 24 inches by a coffee-colored, exceedingly compact sand, commonly called hardpan. This is impervious to water and retards the growth of crops. It varies in thickness from 4 to 10 inches and usually becomes less compact and lighter colored with depth. Below this hardpan layer occurs gray to white sand or fine sand. The Leon soils occupy low, flat ridges and level areas in close association with the St. Johns series.

The St. Johns series is similar to the Leon except that the surface layer is black instead of light gray. Also, the hardpan layer is usually thicker than in the areas of Leon soils. The types of the St. Johns series support a dense growth of gallberry and bay bushes.

In the St. Lucie series the soils and subsoils both consist of white sand with little change in color or structure throughout the 3-foot section. These soils usually occupy low ridges and knolls and have doubtless been formed by wave or wind action.

The Leaf series includes types with gray surface soils underlain by a compact, mottled gray and yellow silty clay which grades into a heavy, plastic, mottled gray, yellow, and red clay. These soils occur on stream terraces.

The Thompson series includes alluvial areas having a dark-gray to brownish surface soil underlain by a grayish-yellow to mottled gray, yellow, and red, plastic clay.

The miscellaneous types of Swamp, Sandhill, Coastal beach, and Tidal marsh include areas, almost entirely nonagricultural, in which the soils could not well be separated into types and series.

The following table gives the name and the actual and relative extent of each of the soils found in Horry County:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Swamp	143,232	20.3	Coxville loam	61,896	3.1
Norfolk fine sand	13,984	16.2	Heavy phase	4,608	
Norfolk fine sandy loam	73,152	10.8	Coxville very fine sandy loam	19,456	2.8
Deep phase	2,624		Portsmouth sand	14,976	2.1
Dunbar fine sandy loam	58,176	8.2	Dunbar loam	11,584	1.6
St. Johns fine sand	49,472	7.0	Sandhill	7,808	1.1
Coxville fine sandy loam	36,416	5.2	Bladen clay	7,360	1.0
Portsmouth fine sand	33,021	4.7	Norfolk sandy loam	5,888	.8
Portsmouth fine sandy loam	32,576	4.6	Ruston fine sandy loam	5,504	0.8
Norfolk sand	26,368	3.7	Coxville clay	4,864	.7

Areas of different soils Continued.

Soil.	Acres.	Per cent.	Soil.	Acres	Per cent.
Portsmouth sandy loam	4,800	0.7	Bladen loam	2,304	0.3
Coastal beach	4,480	.6	Marlboro very fine sandy loam	2,176	.3
Portsmouth loam	4,416	.6	St. Lucie sand	1,344	.2
Coxville silt loam	4,416	.6	Bladen fine sandy loam	768	.1
Leaf fine sandy loam	3,392	.5	Orangeburg fine sandy loam	512	.1
Thompson fine sandy loam	3,328	.5	Total	705,920	.....
Tidal marsh	3,136	.4			
Leon fine sand	2,880	.4			

NORFOLK SAND.

The Norfolk sand, to a depth of about 8 inches, consists of an incoherent gray sand slightly darkened at the immediate surface by accumulations of organic matter. The subsoil, to 36 inches or more, is a bright-yellow incoherent sand of the same texture as the soil. There are places where the subsoil resembles the subsoil of the Ruston sand in color, becoming reddish yellow. Yellow clay is usually found at a depth of 5 or 6 feet below the surface, though in some places it lies at much greater depth.

The Norfolk sand is extensively developed in the northwestern part of the county. Other areas are found farther south along the Little Peedee River swamp and in the eastern part of the county, occupying for the most part the slopes along streams and swamps. The topography ranges from level to undulating and sloping. Owing to its open structure and sloping surface, most of the type is well drained.

Only a small percentage of this soil is in cultivation, uncleared areas supporting characteristic forest growth, consisting of scrub oak, scattered longleaf pine, and some hickory and dogwood. The principal crops are tobacco, corn, and cotton. Oats and peanuts are grown to some extent, and garden vegetables are produced on every farm. Tobacco yields 400 to 800 pounds per acre, corn 15 to 30 bushels, and cotton one-fourth to one-half bale. The Scuppernong grape does well, and the type is especially adapted to the production of watermelons.

On account of its porous structure, this soil warms up early in the spring and dries out quickly after rains, and crops mature early. As a rule, the soil is broken broadcast in March or April, with a 1-horse plow. Subsequent preparation of the seed bed depends largely upon the crop to be planted. For tobacco and cotton the rows are usually laid off with a shovel or bull-tongue plow about 40 inches apart, and the fertilizer is put into this furrow. Two furrows

are then turned back on the fertilizer, and the crop is put in as soon as convenient, the tobacco plants being put in by hand and cotton with a planter. Corn is usually dropped with a planter. Subsequent cultivations are usually made with sweeps and 1-horse cultivators. The fertilizer practices vary greatly, but an 8–2–0 or 8–2½–0 mixture is generally used. From 200 to 1,000 pounds is applied per acre, the smaller quantity for corn and the larger for tobacco.

In general, this soil compares favorably with the Norfolk fine sand in agricultural value, and when sold in conjunction with that type it brings $10 to $20 an acre, depending on the location and improvements. It is less desirable than any of the fine sandy loams.

NORFOLK FINE SAND.

The surface soil of the Norfolk fine sand consists of a gray to yellowish-gray fine sand, from 6 to 10 inches deep. It is underlain by a yellow to yellowish-gray fine sand which extends to a depth of 36 inches or more. Both the soil and subsoil are open and porous. In some places the surface soil is a loamy fine sand, while in others it may consist of a very light gray to almost white fine sand.

Included with this type, northeast of Conway and in the vicinity of the Waccamaw River, are small patches of grayish-brown fine sand underlain by reddish-yellow to light-red fine sand, loamy fine sand, or loamy sand. Such material would have been mapped as Ruston fine sand had it occurred in larger areas.

There are included in this type some small areas of a terrace soil, the Kalmia fine sand, consisting of a gray fine sand underlain by yellowish-gray fine sand. These occur along the Waccamaw River, the largest lying in the vicinity of Nixonville. The included Ruston fine sand and Kalmia fine sand are in some places more productive than the typical Norfolk fine sand.

The Norfolk fine sand is a very extensive and widely distributed type. The largest areas occur in the central part of the county, forming a broad belt between the Waccamaw and Little Peedee Rivers. Other important areas lie in the vicinity of Conway, Wampee, and Little River, and in the extreme northern part of the county. Smaller developments are scattered over the greater part of the survey. Where it is most extensive the type occupies broad, gently undulating to rolling interstream positions, becoming somewhat hilly along a few of the streams. The surface run-off is generally excellent, and the subsoil drainage is good, except in the flattest areas.

The Norfolk fine sand is one of the most important types in Horry County for general farming. A relatively large part of it is cleared; the remainder is forested with longleaf and shortleaf pine, red oak, white oak, blackjack oak, hickory, and dogwood. The flat,

less perfectly drained areas usually have a heavy growth of gallberry.

Corn, cotton, tobacco, oats, Irish potatoes, and early vegetables are the principal crops on this soil. It is well suited to such early truck crops as snap beans, lettuce, radishes, and onions. Cotton yields one-fourth to three-fourths bale per acre, corn 15 to 35 bushels, tobacco 600 to 1,000 pounds, and Irish potatoes 75 to 100 bushels.

Systematic crop rotations are not generally followed on this type, and leguminous crops are not grown to the extent they should be. Tobacco is usually produced in the same fields for several consecutive years, each crop being heavily fertilized. Cotton and corn are usually alternated, and in some cases velvet beans and cowpeas are seeded in the corn at the last cultivation, or rows of velvet beans planted between the rows of corn. Sometimes velvet beans or cowpeas are planted after oats. More or less fertilizer is used on all crops. An ordinary acreage application for corn at present consists of 250 pounds, for cotton 400 to 600 pounds, and for tobacco 800 to 1,000 pounds, of an 8–2–1 or 8–2–0 mixture. In normal times the fertilizers contain as much as 2 to 3 per cent of potash. Irish potatoes receive 1,200 to 1,400 pounds per acre of the above mixtures.

This type is only fairly retentive of moisture, and crops suffer in seasons of extended drought. The soil warms up early in the spring, the planting and maturing of crops being earlier than on any other soil in the area. The type is easy to till and can be cultivated at any time without impairing its physical condition. Its extremely porous character causes it to leach badly, and soluble fertilizers are not retained for any length of time. This condition can best be remedied by the addition of large quantities of organic matter.

The Norfolk fine sand, where cleared and improved, sells for $20 to $50 an acre, depending upon the location with respect to towns. Unimproved areas can be bought for $3 to $8 an acre.

This soil is not naturally as productive as the Norfolk fine sandy loam or the Ruston, Dunbar, and Orangeburg soils. It is deficient in organic matter, which should be supplied by growing leguminous crops and incorporating vegetable materials with the soil. Increased yields of corn invariably follow the growing of velvet beans.

NORFOLK SANDY LOAM.

The soil of the Norfolk sandy loam is an incoherent gray sand or gray to dark-yellow light sandy loam, usually 20 to 24 inches deep, though varying in depth from 12 to 30 inches. The first few inches of the soil is stained with organic matter, becoming, as a result of greater accumulations, almost black in depressions. The sub-

soil is a pale-yellow to bright-yellow friable sandy clay. The bright-yellow color is prominent where drainage is good. Near Galivants Ferry there occurs a variation in which the soil is a comparatively heavy sandy loam, and the subsoil below 24 inches is almost a sand.

The topography of the Norfolk sandy loam is gently rolling, and the drainage is good. The soil is more retentive of moisture than the more sandy members of the series, but can be improved in this respect by adding organic matter, in which the cultivated areas are deficient.

This is one of the best soils in the county for general farming, and one of the best cotton soils of the Coastal Plain. It is a good soil for light tobacco, cowpeas, melons, and light truck crops. Peaches, pears, grapes, and pecans do well. It is not recommended for strawberries on account of its open structure and the tendency of the fruit to be sandy. It is a good sweet-potato soil, but only moderately well adapted to Irish potatoes.

The type is easily tilled and responds readily to fertilizers. It has about the same producing power as the Norfolk fine sandy loam, but is much more difficult to maintain in good productive condition.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of this type.

Mechanical analyses of Norfolk sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21005	Soil	3.5	25.1	15.9	29.2	4.8	17.8	3.8
21006	Subsoil	3.2	22.6	13.2	21.9	2.4	17.1	19.6

NORFOLK FINE SANDY LOAM.

The Norfolk fine sandy loam consists of a gray fine sandy loam passing at 6 to 8 inches into a pale-yellow fine sandy loam to loam which becomes brighter yellow and heavier in texture with increase in depth. The subsoil begins at 20 to 24 inches and consists of a lemon-yellow or yellow friable sandy clay loam to fine sandy clay. This remains uniform in color to a depth of 3 feet or more, but usually is heavier in the lower part of the soil section. Mottlings of reddish brown often occur in the lower subsoil, due apparently to the breaking down of iron concretions. Throughout the greater part of this type the percentage of fine sand is relatively high, frequently being sufficient to make the texture a loamy fine sand.

The surface soil varies in color from light gray adjoining poorly drained areas to dark brownish gray in the better drained situations. The areas with mottled red subsoils represent a gradation toward the

Dunbar soils, the main distinction between the two series being the slight mottling of the Dunbar, caused by deficient drainage and retarded oxidation. The depth to the sandy clay subsoil seems to be somewhat greater in the southern part of the county, gradually decreasing northward.

The Norfolk fine sandy loam is an important type in the northern part of the county and in the vicinity of Wampee. Small areas are distributed throughout the survey. The type occurs principally in nearly level upland areas sloping gently toward the drainage ways. Both surface run-off and subsoil drainage are good.

This is a desirable soil, and the greater part of it is under cultivation. Originally it supported a heavy growth of longleaf pine, with some hardwoods, but all the merchantable timber has been removed. The type is held in high esteem for the production of corn, cotton, tobacco, strawberries, and garden truck. Peaches, pears, and grapes, grown for home use, also do well.

The deep, porous nature of the soil causes it to warm up early in the spring, and crops mature almost as early as on the Norfolk sand. According to farmers' estimates, corn yields from 15 to 40 bushels per acre, sweet potatoes 100 to 200 bushels per acre, tobacco about 1,000 pounds, strawberries 175 to 200 crates, and cotton from three-fourths to 1 bale.

The methods of fertilizing vary greatly from farm to farm. In growing corn, from 200 to 500 pounds per acre of an 8–2–3 mixture is generally used in one application. The most successful tobacco growers make an acreage application of 1,000 pounds of a 3–2–3 or 9–2–3 fertilizer. In a few instances as much as 1,500 pounds of such a mixture is used.

Few farmers follow a definite crop rotation or plow under green-manuring crops. Tobacco is usually grown on the same land for several years, each crop being highly fertilized. Much better results could be obtained and quite a saving in nitrogenous fertilizers effected if more legumes such as velvet beans and soy beans were grown in the rotation. The soil is sufficiently porous for aeration and the free movement of water, and deep plowing is hardly necessary to improve the tilth, but a much deeper soil can be formed by breaking an inch or two deeper each season until a depth of 10 inches is reached. A rotation that has been tried with success on this soil in other counties consists of winter oats or spring oats followed by cowpeas in June, with cotton grown the second year, followed by tobacco the third year and then by corn and velvet beans.

Land of this type is nearly all improved and is valued at $35 to $55 an acre, depending on the location and improvements.

Norfolk fine sandy loam, deep phase.—The principal difference between the deep phase and the typical Norfolk fine sandy loam is

in the depth to the sandy clay subsoil. In the deep phase the sandy clay has a surface covering of 26 to 30 inches of light fine sandy loam or loamy fine sand. In places the surface material is lighter in color than typical, and there are some textural variations from medium sand to coarse sand, but for the most part the phase is distinctly a deep fine sandy loam.

This phase is closely associated with the typical soil. Its surface is flat to gently sloping, and drainage is well established. The phase is somewhat more droughty than the typical soil, and not quite so productive, but practically all of it is under cultivation. The yields of crops range between those on the typical soil and on the Norfolk fine sand. The phase should be handled in the same way as the typical Norfolk fine sandy loam, particularly in maintaining the supply of organic matter and thus increasing the water-holding power.

ORANGEBURG FINE SANDY LOAM.

The Orangeburg fine sandy loam consists of 6 to 10 inches of gray to brownish-gray fine sandy loam, grading into a pale-yellow to reddish-yellow or reddish-brown fine sandy loam which continues to a prevailing depth of 12 to 18 inches. Below this the subsoil becomes a deep-red to bright-red friable sandy clay loam to friable sandy clay and continues without change throughout the 3-foot section. The principal variations of the type are in the depth at which the heavy sandy clay layer is encountered. In many places it lies at 15 inches, while in others it may not be reached above 30 inches. Where the subsoil is deepest the surface soil is sandier than in other places, approaching a loamy fine sand. In marginal areas bordering the Dunbar soils the subsoil shows slight mottling of yellow and gray in the lower 3-inch stratum.

The Orangeburg fine sandy loam is the least extensive type in Horry County. It occupies small irregularly distributed areas about 14 miles east of Conway. The surface in general is gently undulating or slopes to streams or swamps, and drainage is fairly well established.

This is one of the best soils in the county, and almost all of it is in cultivation. The staple crops are grown, including tobacco, cotton, corn, oats, and vegetables. The soil was originally timbered with pine, dogwood, and oak. There are a considerable number of peach, pear, and plum trees on this type, and the trees seem to do better than on the other soils, except the Ruston and Norfolk. They are not given any systematic care, however, and the fruit is often seriously damaged by insects and fungous diseases.

Corn yields 30 to 40 bushels per acre, cotton one-half to 1 bale, oats about 40 bushels, and potatoes 60 to 125 bushels, depending on the

season and the fertilization. From 200 to 300 pounds of an 8–2–0 fertilizer is generally used at present for corn, 600 to 800 pounds for cotton, 1,000 pounds for tobacco, and 1,000 to 1,200 pounds for potatoes and other vegetables.

No definite selling value can be assigned to this type, as it is always held in conjunction with other soils whose value it enhances.

The productiveness of the Orangeburg fine sandy loam can not be maintained without the growing of leguminous crops such as velvet beans, soy beans, cowpeas, peanuts, lespedeza, and vetch. The soil is ideally adapted to these crops, and they can readily be made the basis of a rotation with corn, oats, cotton, and tobacco, the hay to be fed to live stock and the manure returned to the land. Where sufficient live stock is not kept to utilize all the hay, the plowing under of these crops as a green manure will be profitable. Besides increasing the productiveness of the soil, the legumes supply rich nitrogenous feeds and are profitable crops when grown for seed. Peanuts and soy beans grown for oil give large profits on this soil in many places in the South. In Brooks County, Ga., areas of this soil and of the Norfolk and Ruston soils are devoted to the production of peanuts as forage for hogs.

RUSTON FINE SANDY LOAM.

The Ruston fine sandy loam consists of a grayish-brown fine sandy loam, underlain below 6 inches by a yellowish-gray to reddish-gray fine sandy loam which extends to 12 or 15 inches. Below this there lies a reddish-yellow sandy clay loam, or, in places, a dull-red, friable but sticky, sandy clay. Locally the subsoil may be a heavy, tough clay.

The Ruston fine sandy loam has much wider variations in color, depth, and texture than the other soils. It is really intermediate between the Norfolk and the Orangeburg. In surface color it resembles in places the gray of the Norfolk, in other places the brown of the Orangeburg. The subsoil frequently has approximately the same dull-red color as the Orangeburg. The variations in color are due to erosion, which exposes the deeper colored subsoil. Some small areas carry considerable coarse material and approximate a sandy loam to coarse sandy loam in texture. In some places the subsoil shows the red and gray mottling characteristic of the Susquehanna soils, but lacks the tenacious, plastic structure of the true Susquehanna material.

The Ruston fine sandy loam occurs in small areas throughout the northeastern part of the county and in several in the western part. Important areas lie along the Waccamaw River east of Conway, and along Chinners Swamp, Brown Swamp, and Brunson Swamp, west and southwest of Cool Spring. The type occurs on

knolls and on bluffs overlooking the lowlands along the streams. Its topography is mainly sloping, and the natural drainage is good.

This is regarded as a good farming soil. It was one of the first to be cleared, and it is still farmed extensively. The total area, however, is small, and no separate value can be assigned to it. It usually enhances the value of the Dunbar and Norfolk soils, with which it is associated. A large percentage of the type is cultivated. It originally supported a forest growth consisting of longleaf and shortleaf pine, white oak, red oak, live oak, dogwood, hickory, and gum.

The most important crops are cotton, corn, tobacco, potatoes, peanuts, and oats, ranking in the order named. With the wide variations in the soil from place to place, there are correspondingly wide variations in yields. In areas that are well managed the maximum yields of the county, excluding those on the Bladen soils, are probably obtained. Cotton returns from one-fourth to more than 1 bale per acre. Corn ranges in yield from 10 to more than 50 bushels.

The methods of planting and cultivating are practically the same as on the other types. Complete fertilizers are used at the rate of 300 to 1,200 pounds per acre, depending on the crop. Corn receives the minimum amount of fertilization, and tobacco and potatoes the maximum.

This is one of the most desirable and productive soils in the county. It can easily be brought into a high state of cultivation by the growing of velvet beans, soy beans, and cowpeas, and by deeper plowing.

DUNBAR FINE SANDY LOAM.

The surface soil of the typical Dunbar fine sandy loam consists of a gray to dark-gray fine sandy loam, 6 to 10 inches deep, underlain to 15 inches by a yellowish-gray fine sandy loam which grades into a loam to sandy clay loam. Below 20 inches there occurs a sandy clay, mottled gray, yellow, and red. This is friable in the upper part, but becomes tough and somewhat plastic below 30 inches. The plasticity, however, varies greatly in different places. In some areas the subsoil is as friable as that of the Norfolk soils, while in others it is more like that of the Coxville. The type in general lies between the Norfolk and the Coxville in subsoil structure and drainage conditions.

There are several minor variations in texture and color. Numerous small areas are really a loam. The dark surface color, due to organic matter, penetrates to 12 inches in low, depressed situations, while in other places the yellow subsurface layer comes within a few inches of the top. The higher lying and better drained areas approach the Norfolk fine sandy loam in physical characteristics, the soil being a dark-gray fine sandy loam to a depth of 10 inches, underlain to 25

inches by a yellow fine sandy loam, which gives way to the typical mottled gray, yellow, and red sandy clay subsoil of the Dunbar. The depth to the subsoil varies from 12 to 24 inches. In a few places the surface soil is medium to coarse in texture and the subsoil a stiff sandy clay.

The Dunbar fine sandy loam is one of the most extensive soils in the county. A large discontinuous area extends from Conway northeast to the Columbus County line. It also occurs in narrow strips along the Waccamaw River and in small isolated areas in the western part of the county. In general, the topography is flat to gently undulating. Much of the type borders small streams, to which it slopes gradually. Along some of the larger streams a more rolling topography is developed. The greater part of the type lies from 35 to 50 feet above sea level. Surface drainage is fairly adequate, but underdrainage is deficient.

This is among the more important soils of Horry County. Perhaps 25 per cent of it is in cultivation, the rest being in timber or consisting of cut-over pasture land. The original timber growth consisted of longleaf pine and some scrub oak. The leading crops are tobacco, corn, cotton, oats, sweet potatoes, Irish potatoes, and strawberries. Trucking is little developed, but the acreage in potatoes has been greatly increased under the existing war demands. Strawberries are grown commercially within a short distance of the railroads, the Klondike and Missionary being the two principal varieties. Peanuts give good yields, and sugar cane makes a fine grade of sirup. Grapes, peaches, and pears do well, but are given little systematic attention.

Under ordinary conditions corn yields 25 to 30 bushels per acre, cotton one-half to three-fourths bale, tobacco 800 to 1,000 pounds, Irish potatoes 75 to 125 bushels, and sweet potatoes 250 to 300 bushels. Ordinary applications of fertilizer consist of 1,000 pounds per acre for tobacco, 500 to 750 pounds for cotton, 200 to 350 pounds for corn, and 1,250 to 1,500 pounds for potatoes. The fertilizers used at present analyze 8–3–0 or 8–3½–½, it being almost impossible to obtain potash. In normal times potash usually makes up about 2 per cent of the mixtures.

The Dunbar fine sandy loam is easily tilled, but it contains enough heavy material to cause the formation of clods when the ground is plowed too wet. The soil responds readily to good farming methods and adequate fertilization, and its productiveness can be easily maintained. Crops are not rotated systematically, although there is a general tendency to change from corn to cotton or tobacco. A few farmers grow soy beans or velvet beans between the rows of corn, and this is found to be highly beneficial to the soil. In general, the best farms on the Dunbar fine sandy loam are those on which velvet

beans are grown in conjunction with corn. Tobacco ordinarily occupies the same field for several consecutive years, each crop being highly fertilized. Strawberries are nearly always followed by cotton, corn, or potatoes.

Land of this type can be bought in the cut-over state for $5 to $10 an acre, depending on the location with respect to settlements, roads, and railroads. Land with improvements sells for $15 to $30 an acre. Near the larger towns as much as $50 an acre is asked for small tracts.

The opportunities for farmers on this soil are among the best in the county. For maximum returns the drainage should be improved, although this is not as essential as on the other types, exclusive of the Norfolk, Ruston, and Orangeburg soils. The supply of organic matter is low, but this can easily be remedied by growing velvet beans, soy beans, cowpeas, and lespedeza in rotation with corn, cotton, oats, tobacco, and vegetables. All these crops are well suited to this soil and are grown extensively in other parts of the Coastal Plain. Bermuda grass, which does unusually well, furnishes good grazing, and by growing this crop in conjunction with the legumes it should be possible to make cattle and hog raising an important industry. The more extensive production of manure would permit a large saving in the expenditure for fertilizers. Carpet grass is another good pasture plant. Sudan grass, grown in mixtures of cowpeas and soy beans, produces large quantities of well-balanced hay for which there is a strong local demand.

Results of mechanical analyses of samples of the soil, subsoil, and lower subsoil of the Dunbar fine sandy loam are given in the following table:

Mechanical analyses of Dunbar fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
243148	Soil	2.0	10.0	6.8	51.8	15.0	9.9	4.6
243149	Subsoil	1.2	4.2	9.4	50.8	14.0	9.1	11.7
243150	Lower subsoil	1.6	6.6	5.6	47.6	9.4	7.6	21 6

DUNBAR LOAM.

The surface 10 inches of the Dunbar loam is a gray to rather dark gray loam to silty loam, grading into a heavy yellowish-gray to yellow loam which extends to 15 inches. Below this the subsoil is mottled gray and yellow, and it gives away below 25 inches to a mottled gray, yellow, and red clay loam. There are several minor variations in the texture of this type, occurring in areas of a few acres. In low situations the texture is a silt loam to clay loam, while

on the slight ridges it grades toward a fine to very fine sandy loam. The type differs from the Coxville loam largely in its more uniformly yellowish subsurface layer and its more friable subsoil.

The Dunbar loam is irregularly distributed in small areas in various parts of the county, the more important occurring west of Loris, about the headwaters of Lake Swamp. The topography is flat, except where modified by slight ridges and depressions. Surface drainage is fairly adequate, but subdrainage is somewhat deficient.

Less than half of this type is in cultivation, the rest being cut-over timberland. The growth consists of pine, oak, and dogwood.

Corn, cotton, and oats are the principal crops. The yields comparing favorably with those on the fine sandy loam. Corn gives from 20 to 25 bushels per acre, cotton from one-half to three-fourths bale, and oats 30 to 35 bushels. There are no special farm industries on the type, and it is handled in much the same way as the other soils. In growing corn, from 200 to 300 pounds per acre of an 8–2–0 or 8 2–1 fertilizer is ordinarily used, all of it being applied at one time. Definite crop rotations are not followed, although there is a change from corn to cotton or oats.

The selling value of this type is about the same as that of the Dunbar fine sandy loam.

COXVILLE FINE SANDY LOAM.

The soil of the Coxville fine sandy loam consists of 8 to 10 inches of dark-gray to almost black fine sandy loam changing abruptly into a light-gray heavy fine sandy loam which continues to 15 inches. This subsurface layer grades into a yellowish-gray fine sandy loam underlain at about 20 inches by a heavy plastic clay mottled gray, yellow, and red.

The type as mapped presents several variations from the typical description. Thus, there are included areas in which the texture to 15 inches is a loam, below which the typical subsoil is encountered. There is also considerable variation in the depth to the plastic subsoil. In some places this is encountered at 14 inches, while in others a friable sandy clay continues to 28 or 30 inches before the plastic structure is developed. In well-drained areas the light-gray color of the subsurface layer gives way to a more uniform yellowish-gray color, approaching that of the Dunbar soils. The dark color of the surface 6 inches is most pronounced in wooded areas and decreases rapidly when the soil is brought under cultivation, owing to the depletion of organic matter.

The Coxville fine sandy loam is an extensive and widely distributed soil, though many of the areas are small. The topography is prevailingly flat, and the run-off is deficient. The subsoil is usually close

structured and impervious, and the best yields can not be obtained without artificial drainage. Owing to the high cost of establishing this, and to the availability of better drained lands, probably not over 10 per cent of the type is under cultivation, notwithstanding its natural productiveness.

This soil is well suited to the production of strawberries, and is also considered a good soil for corn, cotton, oats, and vegetables. Cabbage, beans, beets, onions, radishes, turnips, and squash are grown for home consumption and to supply the local markets. Sweet potatoes and Irish potatoes do well, but are seldom grown for market.

Strawberries yield from 75 to 100 crates per acre when set out in the summer, while the spring settings yield 100 to 150 crates. The price of strawberries usually becomes so low in the latter part of the season that much of the crop is not marketed. It is estimated that about 75 per cent was marketed this year (1918). Corn yields from 20 to 30 bushels per acre under ordinary conditions, but with special care, on well-drained land, much larger yields are obtained. Cotton yields one-half to 1 bale per acre. All crops are fertilized to a greater or less extent. The soil is low in organic matter, and such crops as velvet beans, cowpeas, and soy beans should be grown. Much of the soil is sour and should be limed.

Some of this land can be bought in its unimproved state for $5 an acre. When improved it sells for $20 to $30, but very few farms are composed entirely of this soil.

COXVILLE VERY FINE SANDY LOAM.

Typically the Coxville very fine sandy loam consists of 6 inches of dark-gray very fine sandy loam passing abruptly into light-gray to almost white very fine sandy loam which continues to 14 inches. Below this the subsurface layer is a yellowish-gray heavy very fine sandy loam to loam, grading at about 20 inches into a heavy plastic clay, mottled gray, yellow, and red. The depth to the red mottling varies considerably, but in general the subsoil becomes intensely mottled with bright red below 27 to 30 inches. The plasticity is usually greatest in the lower 6-inch stratum of the subsoil. In poorly drained areas the gray mottling is less in evidence, and the light-gray to white subsurface layer may be entirely absent, the soil here resembling the Dunbar series except in the plastic structure of the subsoil. Cultivated areas soon lose the dark color of the surface 6 inches, owing to the depletion of the organic matter.

The Coxville very fine sandy loam occurs mostly in the northeastern part of the county, along the State line north of the Waccamaw River. A rather large disconnected area occurs in the southern part of the county west of Myrtle Beach, and a few small ones are mapped in other parts of the county. The surface is flat, and drainage is in-

adequate. The watercourses are usually broad, shallow, winding depressions, with no marked channel and filled with growing timber and thick underbrush.

When properly drained this is considered a productive soil, and in other counties it is profitably used for general farming. In Horry County not more than 5 per cent of it is under cultivation. The rest is either forested with longleaf and shortleaf pine, oak, and dogwood, or supports a growth of wild grasses and is known as savanna land.

The type, especially the savanna areas, is held in high esteem for grazing.

The principal crops are corn, oats, cotton, and cowpeas. Strawberries are produced for home use and give good yields. Irish potatoes, sweet potatoes, cabbage, beans, onions, turnips, collards, peas, beets, and okra are also successful crops. Ribbon cane and sorghum are produced in small patches and made into sirup for home consumption. Corn returns from 20 to 30 bushels, and cotton from one-half to three-fourths bale per acre. Much larger yields are obtained under proper drainage conditions and with adequate fertilization.

The selling value of this type depends mainly on its location. In most places the land can be bought for $5 to $7 an acre in its unimproved condition.

With proper management the Coxville very fine sandy loam can be built up to a high state of productiveness. The topographic conditions require that drainage be accomplished in large units, necessitating the cooperation of many landowners. The general slope is toward the Waccamaw River, which serves as an outlet for the drainage. Drainage districts have long been established on the same type of soil in adjoining areas of North Carolina.

COXVILLE LOAM.

The Coxville loam consists of a dark-gray to almost black heavy fine sandy loam to loam, 6 to 10 inches deep, underlain by a mottled yellow and gray fine sandy clay loam extending to 12 to 15 inches. Below this the subsoil grades quickly into a heavy plastic clay, mottled gray, yellow, and bright red. Usually the red mottling is more pronounced in the lower part of the 3-foot section. There are places where the red mottling does not appear in the 3-foot section, but it always underlies the subsoil at some depth.

The Coxville loam is rather extensive in the southern part of the county west of Waccamaw River, and it also occurs in scattered areas through the northern end of the county. It is usually closely associated with the other Coxville types. In places it occupies de-

pressed or basinlike areas, and the topography in general is flat, with deficient drainage.

Only small areas of the type are in cultivation. The rest is either in timber, principally longleaf and shortleaf pine, or consists of cut-over areas where little or no timber is standing. The type is used for the staple crops, including cotton, corn, oats, and strawberries, but no reliable estimates of the yields are obtainable. In general, the type compares very favorably with the Coxville fine sandy loam and very fine sandy loam, and it responds to the same methods of improvement.

Unimproved land of this type is held at $5 to $20 an acre, and improved tracts at $30 an acre.

Coxville loam, heavy phase.—The soil of the Coxville loam, heavy phase, is very thin in places, averaging 4 to 6 inches in depth. It is dark gray to black and a fine sandy loam to loam in texture. The loam is found in depressions and is darker in color than the more sandy areas. The subsoil from 6 to 36 inches or more is a drab-colored plastic clay with yellow and red mottlings. The plasticity increases with depth, and the red mottlings become more pronounced. Below 24 inches the material is thickly mottled with brick red and is very heavy and compact, although in some places a small amount of sand is found in the deeper subsoil.

This phase is confined almost entirely to the low, flat stretches of land (savannas) in the southern part of the county. The drainage is very poor, and the soil is water-logged the greater part of the year. During droughts the surface bakes hard and cracks.

This is naturally a very strong soil, but in its present condition it is not capable of producing even fair yields. If thoroughly drained and properly handled, good crops of cotton, oats, corn, cowpeas, strawberries, and possibly wheat, could be grown. At present very little of it is under cultivation, and that is neither well drained nor properly farmed.

To bring this type under cultivation the first step will be to better the drainage, which can only be done on an extensive scale. Next, an application of about 2,000 pounds of lime to the acre should be made to correct the natural acidity of the soil and to improve its physical condition. Plowing should be deep, and large quantities of organic matter should be added further to change the compact, heavy structure of the soil. To facilitate surface drainage the soil should be plowed in comparatively narrow "bands" with the water furrows running in the direction of the slope. Much care must be exercised in handling this soil. It remains wet longer after rains than any other soil in the county, and the unfavorable conditions resulting from stirring it at the wrong time are more lasting, as

years are required to break down the clods and put the soil in good condition again. When once reclaimed, the difficulty of cultivation will be removed to a considerable extent.

The price of this land is about $10 an acre, and under the present conditions it would cost more to drain it than it is worth. As there is plenty of more desirable land in the county still unoccupied, some time will elapse before very much of the Coxville loam, heavy phase, is reclaimed.

Below are given the results of mechanical analyses of samples of the soil, subsoil, and lower subsoil of the Coxville loam:

Mechanical analyses of Coxville loam.

Number.	Description.	Fine gravel	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
243107	Soil	0.6	2.5	2.0	25.6	16.2	32.7	20.0
243108	Subsoil	1.3	5.4	3.4	35.2	9.5	24.0	21.1
243109	Lower subsoil	1.6	3.9	2.4	23.6	7.8	22.4	38.4

COXVILLE SILT LOAM.

The surface soil of the Coxville silt loam is usually dark gray to almost black, owing to the accumulation of organic matter. It consists of a silt loam giving way at 14 inches to a silty clay which grades into a tough and somewhat plastic clay at about 20 inches. The subsurface silty clay layer is yellowish gray, but the color becomes mottled gray, yellow, and bright red at about 20 inches. In some places the heavy subsoil lies within 15 inches of the surface.

The Coxville silt loam occurs in small irregularly distributed areas. It is an unimportant type agriculturally, being used almost entirely for grazing. The topography is flat, and the drainage is very deficient. When adequately drained, this soil will be found to compare favorably with the other Coxville types in productiveness.

No definite selling value can be assigned to this soil, as it is usually held in conjunction with other types.

COXVILLE CLAY.

The surface 8 inches of the Coxville clay consists of gray to grayish-brown clay. This grades into drabbish-brown clay extending to 12 to 15 inches, below which the subsoil becomes a plastic mottled gray and yellow clay. Below 20 to 25 inches distinct mottlings of red appear, and the subsoil is usually very heavy and compact, although in places a small amount of sand is found in the deeper strata.

The Coxville clay is found in the eastern part of the county. It has very poor drainage and is water-logged the greater part of the year. It becomes dry during droughts, when it bakes badly. If it is to be cultivated the supply of organic matter must be increased. When drained, the type should be almost as productive as the Bladen clay. It is regarded as a very strong soil in other counties for such crops as cotton, corn, oats, and vegetables of all kinds.

The success attending drainage work by means of ditches on the Bladen clay warrants its extension to include this soil as well as the other Coxville types. When once drained, this soil will be found to respond readily to the ordinary methods of improvement, such as the growing of velvet beans, cowpeas, soy beans, and other legumes. Liming will help to improve, not only the acid condition of the soil, but also its unfavorable structure.

Land of this type can be bought in its unimproved state for $5 to $10 an acre.

BLADEN FINE SANDY LOAM.

The Bladen fine sandy loam consists of gray fine sandy loam, about 8 inches deep, underlain by a light-gray fine sandy loam to sandy loam to 15 or 18 inches. Below this the subsoil grades into a grayish-brown to brown or yellowish-brown sandy clay loam. The type varies in texture from a sandy loam to a loam, but the variations occur in small areas which can not well be shown separately on the map. There are places where the subsurface layer from 10 to 15 or 18 inches is a white sandy loam or fine sandy loam underlain by a mottled yellow, gray, and reddish-brown sandy clay.

The Bladen fine sandy loam is confined to two small areas in the northeastern part of the county in the vicinity of Wampee. The surface in general is flat, but with slight ridges or elevations rising a foot or more above the general level. The run-off is fairly adequate, but the subsurface drainage is deficient.

The type is of only secondary importance on account of its small extent. About 10 per cent is under cultivation, the rest supporting a timber growth, principally pine. Corn, cotton, tobacco, oats, and vegetables, the leading crops, occupy about an equal acreage. Corn yields from 20 to 50 bushels per acre, cotton from one-half to three-fourths bale, and oats from 30 to 40 bushels.

The soil is handled and fertilized in much the same way as the Bladen clay and the Bladen loam, which occur in close association with it in the same general region.

Cleared land with drainage ditches completed is held as high as $75 an acre, while uncleared areas can be bought for $5 to $10. No farms are composed entirely of this soil.

The Bladen fine sandy loam is friable and easily cultivated and works up into a good seed bed. Ditching is needed to improve the drainage. The soil is lower in organic matter than the Bladen clay or loam, and this constituent should be supplied by growing legumes and by applying barnyard manure. The type, especially in the more sandy areas, is well suited to the production of vegetables. It is said to be especially adapted to peanuts where drainage is adequately established.

BLADEN LOAM.

In its typical development the soil of the Bladen loam consists of a dark-brown to grayish-black loam, with an average depth of 15 inches. Below this the subsoil grades through a grayish-drab sandy clay into a drab plastic clay mottled with yellow and brown. The type is extremely variable in texture and in depth to the subsoil. There are places where the heavy subsoil lies within 10 inches of the surface, while in others it is not encountered above a depth of 20 inches. The type grades through a heavy loam into a clay loam as the Bladen clay is approached. Near the higher lying situations the texture grades toward a fine sandy loam, while in low poorly drained situations the soil in areas of 1 or 2 acres is frequently a drabbish-gray silt loam mottled with brown.

The Bladen loam is comparatively an inextensive type in Horry County. It is principally developed north and northwest of Myrtle Beach, in conjunction with the Bladen clay. Like that soil, it has a flat topography, but it is slightly higher lying. Drainage is naturally deficient and must be improved before the soil can be used for farming. This has been successfully done near Myrtle Beach, in the same drainage district as the Bladen clay. About 30 per cent of the type is under cultivation, the rest being in timber, consisting of elm, gum, cypress, water oak, and some pine and holly.

Potatoes, corn, oats, cotton, and cowpeas are the principal crops on this soil, and they equal those on any other soil in the survey yields in the county. Potatoes return from 60 to 160 bushels per acre, corn about 60 bushels, cotton three-fourths to 1 bale, oats about 30 bushels, and cowpeas one-half to 2½ tons of hay. An 8–2–0 mixture is used as fertilizer, in amounts ranging from 200 to 1,500 pounds per acre. Potatoes receive the heaviest and corn the lightest applications.

On account of its friable structure, this soil is easily tilled and crops mature early. The cultural methods are among the best in the county. Two-horse plows are used in breaking the land. Plowing is usually done as soon as the soil is dry in the spring, and to depths of 5 to 6 inches. Ridge cultivation is the rule for all crops.

There are no farms composed entirely of the Bladen loam, and no definite selling value can be assigned to it on account of its small

extent, but in general it enhances the value of adjoining types included with it in farms. The success that has followed drainage warrants placing all the type under the plow as quickly as possible.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Bladen loam:

Mechanical analyses of Bladen loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
243156	Soil	0.1	2.2	4.9	43.4	3.5	17.6	28.2
243157	Subsoil	.6	3.0	4.8	28.6	2.4	14.8	45.9

BLADEN CLAY.

The surface soil of the Bladen clay consists of a dark-brown to slightly black clay, 10 inches deep, grading into a mottled drab and rusty-brown, plastic clay which continues without important change throughout the 3-foot section.

A variation of the type in the vicinity of Myrtle Beach consists of a black clay to a depth of 12 to 14 inches, grading into a drab clay which may have slight brownish mottling in the lower part of the 3-foot section. This variation is higher in organic matter than the typical Bladen clay, which accounts for its darker color. It seems to have a slightly higher agricultural value than the rest of the type, in that it is more friable and works up into a better seed bed. Small areas of this variation are almost like a peaty muck, and in places a stratum of peat is encountered in the 3-foot section.

The Bladen clay presents several minor variations in texture and color. There are included small areas in which the soil approaches a loam in texture. The subsoil in places is strongly mottled with yellow, and when the material is bored into it seems to have a yellowish, greasy appearance, somewhat like that of the less plastic Portsmouth soils. In some places the entire subsoil is bluish drab, and in other situations the surface soil shows mottling of yellow and gray.

The Bladen clay is confined to the eastern part of Horry County, the largest area occurring in the vicinity of Myrtle Beach. The topography is flat, and both surface run-off and underdrainage are poorly established.

A large tract of the Bladen clay in the vicinity of Myrtle Beach and Pine Island has been drained by canals and placed under cultivation but only about 30 per cent of the type as a whole is cleared. It is naturally one of the strongest and most productive soils in

Horry County, and is held in high esteem for corn, hay, oats, potatoes, and cotton. The forested areas support a heavy growth of sweet gum, cypress, elm, ash, and water oak, together with some beech, holly, and pine. There are no special industries, except that Irish potatoes are extensively grown around Myrtle Beach. About 450 acres were devoted to this crop in 1918, one farmer alone planting 350 acres. Yields range from 60 to 150 bushels per acre, and profits are reported as averaging $100 an acre, with $200 as the maximum. The principal growers during this season (1918) used 1,500 pounds per acre of approximately an 8–2–0 mixture. Corn yields from 50 to 75 bushels per acre without fertilization wherever it follows a crop of cowpeas or is grown in conjunction with cowpeas and velvet beans. Cowpeas yield from 1½ to 3 tons of hay and oats 30 to 40 bushels of grain per acre.

Crops usually mature somewhat later on this soil than on the sandy types. Tillage operations are ordinarily delayed until March. In the preparation of the seed bed two-horse plows, disk harrows, and rollers are used. Subsequent cultivations are performed largely with one-horse plows and sweeps. The cultural methods on this soil are better than the average for the county.

As is elsewhere stated, practically all the soils in the county except small areas of the Norfolk, Ruston, Orangeburg, Marlboro, and Dunbar soils, have inadequate drainage. The Bladen clay is probably most deficient, and the success attending drainage work on this soil in the vicinity of Myrtle Beach warrants an extension of such work on the other types, particularly the Dunbar, Coxville, and Portsmouth soils. The Bladen clay is as difficult to drain as any soil in the area, not only on account of its low situation and slight slope, but also on account of the tenacious character of the soil and subsoil. While cleaning out the swamps will undoubtedly help conditions considerably, satisfactory drainage can be effected only by lowering the water table through the construction of deep ditches. The topographic conditions require that large units be drained as single projects, which necessitates the cooperation of many landowners.

Besides the financial advantage of increased crop production due to drainage, there would be the benefit to the general health of the community. The decrease of malaria, which now exists to an alarming extent, fostered by the numerous breeding places for the mosquito, would add to the commercial development of the entire county.

Land of the Bladen clay in its cut-over condition can be bought for $3 to $8 an acre. Areas cleared and drained are valued as highly as $100 an acre.

Below are given the results of mechanical analyses of samples of the soil and subsoil of the Bladen clay:

Mechanical analyses of Bladen clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
243154	Soil	1.0	1.9	2.2	25.3	3.4	31.0	35.6
243155	Subsoil	1.0	2.5	2.0	18.6	2.9	21.2	51.7

PORTSMOUTH SAND.

The soil of the Portsmouth sand, to a depth of about 8 inches, is a medium to coarse sand with a high organic matter content. The color of the surface 2 or 3 inches is black, while the lower portion of the soil is brown in color. The subsoil, to 36 inches or more, is a dark-gray sand to coarse sand, somewhat sticky in places owing to a slightly increased clay content. The type occupies depressions and stretches of low, flat country and has very poor natural drainage.

The Portsmouth sand is found in the northwestern part of the county. It is not an important type. Very little of it is under cultivation, and it produces poor yields. It is better adapted to corn than to any other crop, giving moderate yields without the aid of fertilizers where other conditions are favorable. Celery and onions give good results. Strawberries also do well, but are likely to be sandy. The natural vegetation consists of a scattering growth of longleaf pine with a thick undergrowth of gallberry and bay laurel.

This is not a strong soil, and its productiveness depends on the amount of organic matter it contains. Where this is depleted, organic matter should be added to the soil by turning under green-manuring crops. This type is usually acid and should be limed. Good drainage and deep plowing greatly increase the yields.

The following table gives the average results of mechanical analyses of the soil and subsoil of this type:

Mechanical analyses of Portsmouth sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21015, 21017	Soil	1.1	22.3	21.3	29.9	3.1	11.5	10.6
21016, 21018	Subsoil	1.6	25.1	23.9	31.7	3.2	8.2	6.2

PORTSMOUTH FINE SAND.

The surface soil of the Portsmouth fine sand consists of a dark-gray to black loamy fine sand, from 10 to 15 inches deep, under-

lain by a dark-gray fine sand which frequently grades into a white fine sand to sand. Occasionally the surface soil continues black throughout the 3-foot section, while again it may be a dark-gray fine sand mottled with yellow or containing pockets of sandy clay. Included with the type are small areas of Plummer fine sand, which has a gray to brownish-gray surface soil and a gray or mottled yellow and gray fine sand subsoil.

The Portsmouth fine sand is widely distributed over the county, some of the largest areas occurring in the sandy region west of Bayboro. It occupies flat or slight depressed surfaces, and both the run-off and the subsoil drainage are poor. Only a few small tracts, mostly surrounded by the Norfolk fine sand, have been reclaimed, but most of the type can be drained and rendered suitable for farming. The forest growth consists principally of swamp pine and a dense undergrowth of gallberry, bay bushes, bamboo, and huckleberry.

Most of the type is used for a free range for cattle. Where cultivated, it has been found best suited to the production of corn. Strawberries do well when heavily fertilized.

PORTSMOUTH SANDY LOAM.

The soil of the Portsmouth sandy loam is about 12 inches deep. The first 2 or 3 inches is black or dark gray, but the color grades quickly into dark brown. The subsoil is a dark-gray sandy clay, changing to a light-gray sandy loam below 30 inches. A few quartz pebbles are usually scattered on the surface.

A variation of the type is found in the cypress bays north of Lake Swamp. Here the soil is a black to dark-gray heavy sandy loam, 10 to 15 inches deep, containing an unusually large proportion of organic matter in the first 6 inches. The subsoil is a dark-gray to brown sandy loam. In some places a gray sand stratum is found below 20 inches, and throughout the variation it occurs at 30 to 40 inches below the surface. This stratum of sand rests upon a heavy plastic clay at an average depth of 5 feet. The natural drainage of this soil is very poor, water standing upon the surface most of the year. A typical area of this variation is found in Fifteenmile Bay, where a large acreage has been drained by cutting a canal to Cedar Creek and connecting it with lateral ditches. While crops can be grown successfully in dry seasons, they are usually unable to withstand the unfavorable conditions existing in wet seasons. In favorable years 1 bale of cotton or 50 bushels of corn per acre can be grown without fertilizers. Apparently good crops can not be obtained two years in succession. The heavy character of the soil and its water-soaked condition make cultivation very difficult. The partial failure

of crops in alternate years may be the result of plowing the soil while too wet, one year being required for the soil to regain its former condition. This soil should be thoroughly drained and treated very much the same as Muck. It should produce good crops of celery, onions, and lettuce.

The topography of the Portsmouth sandy loam as a whole is level, and drainage is poor. Only a small part of the type is cleared and under cultivation. The natural growth is largely longleaf pine. The typical soil, while not so productive as the cypress-bay variation, produces good crops of cotton, corn, and oats. Legumes do not do well on account of the poor drainage. Strawberries give fair returns, but there are so many other types in the county better adapted that this soil is not likely to be used for the crop. Cotton is an uncertain crop, failing in wet seasons. The use of basic slag is recommended, as the soil is too acid and too poorly drained for ordinary fertilizers to be of much benefit.

PORTSMOUTH FINE SANDY LOAM.

Typically the Portsmouth fine sandy loam to an average depth of 14 inches consists of a black fine sandy loam, high in organic matter. The subsoil is a gray and yellow, heavy fine sandy loam to sandy clay, passing at 25 to 28 inches into a mottled yellow and gray clay or sandy clay. The type shows considerable variation in texture and color. In areas which have been cultivated for some time the surface soil is gray instead of black.

In the vicinity of Loris some small areas of the type are spoken of as "bay land." The soil here is very black and rich in organic matter to a depth of 15 inches, below which it usually grades into white sand, which in turn is underlain by a yellow and gray sandy clay. This may become very compact at depths of 34 to 36 inches. These areas may be covered with water for long periods.

The Portsmouth fine sandy loam is widely distributed, but its principal development is in the northern part of the county, north and northwest of Loris. A large area occurs about 4 miles northwest of Homewood. The largest cultivated areas are those southeast of Conway, in the vicinity of Coopers.

This soil is level and poorly drained, and very little of it has been brought under cultivation. Most of the forested areas support a heavy growth of longleaf and shortleaf pine, water oak, black gum, sweet gum, and tupelo gum. The "bay" areas have a characteristic growth of swamp pine, with a few bay bushes and an undergrowth of bamboo, brier, gallberry, and huckleberry bushes. There are a few tracts known as "savannas," with no vegetation except species of water grass and broom sedge. These frequently occur at the head of small streams and drainage ways.

When cleared and drained the Portsmouth fine sandy loam is one of the best types in the county. It is used almost exclusively for corn, although cotton is also grown. Five miles east of Wampee, in the northeastern part of the county, corn and cotton are produced. It is stated that as much as 80 bushels of corn per acre have been grown without any fertilization. The type is not well adapted to tobacco, but such truck crops as celery, lettuce, potatoes, and onions give good yields. Sugar cane also does exceedingly well, returns ranging from 100 to 300 gallons per acre.

Cleared land of the Portsmouth fine sandy loam is held at $30 to $50 an acre, while uncleared and undrained land can be bought for $3 to $15, depending on the location with respect to railroads.

On soil of this type in other counties an excellent stand of alsike clover has been obtained, following the application of lime at the rate of about 2 tons per acre. Where the soil is to be used for pasture it can be greatly improved by draining and seeding to redtop, orchard grass, and alsike. In cultivated fields the organic supply should be carefully maintained by growing and plowing under cowpeas and velvet beans or the manure from these crops. Liberal applications of limestone will be found highly beneficial.

PORTSMOUTH LOAM.

The Portsmouth loam consists of dark-gray to black loam underlain at about 12 inches by a bluish-gray sandy clay which is mottled with yellow in the lower portion of the 3-foot section. In places the surface soil is a dark-brown silt underlain by a mottled drab and yellow silty clay which becomes somewhat plastic at about 30 to 36 inches. Small spots of black very fine sandy loam are mapped with this type. Locally there is some evidence of a hardpan layer at about 12 inches below the surface, but this is not characteristic. Included with the type are small areas of Coxville loam, which have a mottled gray and yellow, plastic, heavy clay subsoil.

The Portsmouth loam is closely associated with the Coxville soils, and in many places the boundary as drawn is arbitrary. The type has a rather wide distribution, but occurs in small tracts. It usually occupies depressions or low-lying areas bordering sloughs and natural drainage ways. Its surface is flat, and it frequently lies 2 to 4 feet below the higher lying surrounding soils, like the Norfolk. The surface drainage is naturally poor over the greater part of the type.

Some of the areas occupy the smaller bays or swamps and shallow ponds. Part of the material here very closely approaches Muck, as it consists primarily of fairly well decomposed vegetable matter from 15 to 30 inches deep. This Muck is usually underlain by a gray to white sticky sand.

Only a small proportion of this type is under cultivation. The forest growth consists of gum and cypress, with bay bushes in places and a dense undergrowth of briers, bay bushes, shrubs, ferns, and mosses. This is a strong soil, and when drained and reclaimed it produces large yields of corn and grasses. An area in Cowpen Swamp has been in corn for six years and has averaged about 60 bushels per acre without the use of fertilizer. Corn yields from 40 to 60 bushels per acre and cotton from three-fourths to 1 bale. From 500 to 600 pounds per acre of a complete fertilizer is used for cotton. In view of the high organic content of this soil, it is not likely that the complete fertilizer should necessarily contain a large percentage of nitrogen.

This soil would be greatly improved by artificial drainage. It is naturally sour, and the liberal application of lime would be very beneficial to all crops. The type should be used for the production of corn, pasture grasses, cowpeas, and potatoes. It is naturally one of the best soils in the county.

MARLBORO VERY FINE SANDY LOAM.

The surface 6 inches of the Marlboro very fine sandy loam consists of a dark-gray very fine sandy loam grading quickly into a light-yellowish very fine sandy loam which extends to 14 or 15 inches. Below this the subsurface layer is a dingy yellowish gray very compact, but fairly friable, sandy clay loam to loam which becomes mottled with bright red in the lower part of the 3-foot section and grades into an impervious clay at 25 or 28 inches. In some places the entire subsoil may be dingy gray with little red, while again areas occur in which the gray material is strongly streaked with red, the subsoil resembling that of the Susquehanna series in this respect, but lacking its tenacious, plastic structure. The essential variation of the Marlboro series from the Dunbar lies in the exceedingly compact structure of the subsoil. The Marlboro lacks the uniform yellowish color and open structure of the Norfolk soils. The drainage condition grades between that of the Dunbar and the Norfolk.

The Marlboro very fine sandy loam occurs in small areas northeast of Conway and in the vicinity of Longs. It occupies smooth, flat positions bordering the Waccamaw River bottoms. The small body about 5 miles northeast of Conway is gently undulating, and has better surface drainage than that in the vicinity of Longs. It is also less compact in the subsoil, which approaches more nearly the structure of the Norfolk subsoil.

On account of its small total area the Marlboro very fine sandy loam is not important agriculturally. Approximately 75 per cent of it is in cultivation, the rest being forested mainly with longleaf

and shortleaf pine and some species of oak. The principal crops grown are tobacco, corn, cotton, oats, and potatoes, ranking in the order named. Some cattle and hogs are kept on all the farms to provide meat for home use. Corn yields from 20 to 50 bushels per acre, oats 30 to 60 bushels, and cotton one-half to three-fourths bale, depending on the productiveness of the soil and the nature of the season. Areas with the more porous subsoil give somewhat better returns than those of exceedingly compact structure. The Marlboro very fine sandy loam is handled and fertilized in much the same way as the Dunbar soils. It is held at $30 to $40 an acre where improved.

The surface soil of this type is friable and easily cultivated, but the subsurface material is inclined to bake severely. This tendency can be remedied by applying manure or plowing under large quantities of crop residue, preferably velvet beans, soy beans, and cowpeas. The type is well suited to all the staple crops, including strawberries and truck, and can easily be brought to a high state of productiveness.

LEON FINE SAND.

The soil of the Leon fine sand consists of a light-gray to almost white loose, incoherent fine sand grading at 10 to 12 inches into a coffee-brown layer of fine sand which is compact and locally referred to as hardpan. At 16 to 18 inches the brown layer changes to light gray or almost white, but the texture continues as a fine sand throughout the 3-foot section. In some places the lower subsoil shows a faint mottling of yellow and approaches a loam in texture. This soil differs from the St. Johns fine sand largely in the light-gray instead of black color of the surface material. Some areas too small to outline are included in the St. Johns soil.

The Leon fine sand is mapped largely in the northeastern and northern parts of the county. It occurs in small, irregular areas which are flat and poorly drained. The native growth consists of pine, palmetto, runner oak, and gallberry. Practically none of the type is in cultivation, and it has a low agricultural value. It is usually sold in conjunction with the Norfolk fine sand, the value of which it depreciates.

ST. JOHNS FINE SAND.

The surface 12 inches of the St. Johns fine sand, locally known as "bay land," is a black fine sand. At any depth from 10 to 15 inches a coffee-colored compact to impervious layer of fine sand is encountered which has a prevailing depth of 9 inches. This grades through a brownish-gray fine sand for 3 to 4 inches, below which lies a gray quicksand extending to 36 inches and below.

The principal variation from typical is in the degree of cementation of the subsurface or coffee-colored stratum. There are places

where this layer is firmly cemented to form sand rock or brown sandstone, while in other situations it is merely of a compact structure. As mapped the St. Johns fine sand includes some areas of Norfolk fine sand and Leon fine sand which, on account of their general inaccessibility and small extent, could not be shown separately on the soil map. There are also a few small bogs in which the soil is the Portsmouth loam. This soil is valuable but inaccessible at present.

The St. Johns fine sand occupies a large area southeast of Conway, extending toward Myrtle Beach. The topography is flat except where modified by "slashes" which serve as drainage ways. Most of these have no well-developed channels, but extend for miles over the flat piney lands, without any noticeable current except during freshets. Water usually collects over the surface and remains for long periods after rains, and the impervious coffee colored subsurface soil obstructs the natural passage of water downward. This impervious layer was probably formed at the prevailing level of the water table, the cementing material accumulating through capillary action.

None of this soil is in cultivation. The farmers have cleared the interspersed areas of Norfolk fine sand for cultivation and scrupulously avoided the St. Johns fine sand. Settlers report that in the early days a few farms were cleared on this soil, but that success was impossible.

This soil originally supported a growth of scrubby longleaf and shortleaf pine, with species of gum along the drainage ways. Practically all the merchantable timber has been removed, but there are straggling pine trees over most of the soil which in 10 or 15 years will be merchantable. This suggests the possibility of profitably using the type for forestry. It is probable that under good care, including the prevention of forest fires, the trees would grow into merchantable timber every 25 or 30 years. Forestry, together with the grazing the type affords, is its best, and possibly its only, use under present economic conditions.

There are no settlements on this type, and most of it can be bought for $3 to $5 an acre. It will probably be one of the last upland soils to be settled on account of its low agricultural value and the high cost of establishing artificial drainage. When it changes hands it is for the timber privileges.

ST. LUCIE SAND.

The St. Lucie sand is a loose, incoherent white sand 36 inches or more in depth. In places the soil is modified by wind action and has drifted. The surface material in places is dark gray to a depth of 4 inches, owing to the presence of decaying vegetation. Small areas are included in which the subsoil has a yellowish tinge, representing a variation toward the Lakewood fine sand.

This is an unimportant type, occurring in the eastern part of the county, between the Waccamaw River and the coast. It occupies gently undulating knolls and ridges and is extremely droughty. There is only a scattered growth of scrubby longleaf pine and forked-leaf blackjack oak, all the valuable timber having been removed. An occasional bunch of wire grass is found.

The agricultural value of this soil is very low, and a few attempts to cultivate it have met with failure. It could be made to produce vegetables and perhaps corn and other staples with a fair degree of success, if the organic content were systematically built up so as to enable the soil to retain moisture, but this is not practicable as long as other valuable types remain undeveloped.

LEAF FINE SANDY LOAM.

The Leaf fine sandy loam consists of a gray fine sandy loam or loamy fine sand which grades at about 12 inches into a light-yellow fine sandy loam. At 16 to 20 inches the material becomes heavier, and at about 22 inches it changes to a heavy, tough, and somewhat plastic clay mottled gray, yellow, and red. This is very similar to the subsoil of the Coxville soils. Variations occur in which the soil is darker and the subsoil either shallower or deeper. Some low depressions within the type might properly be classed as the Myatt fine sandy loam if of larger extent. About 10 miles northeast of Conway the type includes areas in which the surface 18 inches consists of a very coarse sandy loam and the subsoil a coarse sandy clay loam. These are spoken of as swamp. When drained they have been found very productive without fertilizing, yields of corn up to 85 bushels per acre having been obtained.

The principal areas of Leaf fine sandy loam are mapped along the Waccamaw River, between Longs and Hammond. It occupies a low second bottom that in places does not appear to be a distinct terrace. Practically all of the type lies above overflow. The surface is generally level but with numerous narrow, low slashes and depressions.

The soil has a comparatively high agricultural value and is used for growing corn, cotton, beans, and oats. Corn, the principal crop, yields from 25 to 50 bushels per acre. Cotton yields from one-half to 1 bale per acre. Velvet beans are recognized as a valuable crop to enrich the soil as well as for feed. They are generally seeded in the corn fields and pastured in the winter. Cattle managed in this way are in prime condition for beef in late December, and the gain in weight is made at a minimum expenditure of time and labor.

This land is valued at $25 to $40 an acre, depending on the location and improvements. The unimproved areas are much lower in value, but are small in extent and can not readily be assigned a separate price.

THOMPSON FINE SANDY LOAM.

The surface soil of the Thompson fine sandy loam is a gray to dark grayish brown loamy fine sand to fine sandy loam or very fine sandy loam, in most places high in organic matter. At a depth of 8 to 10 inches this grades into a yellow or light-gray fine sandy loam which is fairly uniform to 18 inches, below which the subsoil grades into a mottled gray, yellow, and reddish sandy clay to clay loam. This extends to a depth of 3 feet.

The type as mapped includes soils of different texture and color. Some areas, especially near stream channels, have a black surface soil. An illustration is found in a tract of about 60 acres 8 miles northeast of Conway. The soil is a black silt loam to 12 inches, grading into a drab clay which is underlain by a mottled gray, yellow, and red clay of plastic structure. In other places the surface texture may be a clay. There is also considerable variation in the red mottlings of the subsoil, the red being entirely lacking in some areas. Occasional low areas that comprise a mixed soil and support a swamp timber growth are included with this type.

Considerable areas of the Thompson fine sandy loam extend along the Waccamaw River for a distance of 8 miles east of Conway, and similar areas are encountered in various parts of the county.

The type occupies first bottoms and is low lying and subject to annual overflow. Although considerable areas between Conway and Vina have fairly good drainage, the type is not used for agriculture on account of the frequent inundations. Much of it has an open forest growth of cypress, pine, oaks, and gum. It supports a good growth of native grasses and is used exclusively for pasture and timber.

SWAMP.

Swamp includes low-lying, poorly drained areas, which are partly or wholly inundated throughout much of the year. The type in places contains a high percentage of partly decomposed organic matter. The soil is so variable that definite types can not be established. The surface soil prevailingly ranges in texture from fine sandy loam to loam and in color from gray to black. The subsoil ranges from a bluish-gray or black plastic clay through a gray fine sandy loam to a whitish sand. Many small areas of Thompson fine sandy loam are included in the type, it being impossible to separate them. The Thompson soil is also subject to frequent overflows, but the water does not remain on the surface as long as on the swampy areas.

Swamp is encountered mainly in the first bottom of the Waccamaw River, but all the larger streams are bordered by a strip of

this material. It is prevailingly flat, but relieved by small hummocky areas.

The type supports a dense growth of large timber, including cypress, pine, tupelo gum, sycamore, water oak, bay, and magnolia. Around the edge of the areas there is a dense growth of shrubs and vines. In its present condition the Swamp is nonagricultural, and its reclamation would be very expensive. As long as there is so much undeveloped desirable upland in the county it is not probable that any efforts will be made to reclaim the Swamp for years to come.

SANDHILL.

The soil of the Sandhill is a gray incoherent sand from 6 to 15 inches deep. The surface is covered by a mantle, 1 to 3 inches deep, of white sand that from a distance has the appearance of snow. Beneath this the soil is stained by organic matter for a few inches. The subsoil usually is a pale-yellow, incoherent sand. In places the yellow color is very faint, and in others the color is a light cream or nearly white. This material averages about 30 feet in depth, and in some places reaches a depth of 50 feet. The soil particles are angular and almost entirely of quartz.

Areas of the Sandhill occur along Lumber River, the Little Peedee River, and Bull Creek, and intermittently along the entire western boundary of the survey. On the Little Peedee and Lumber Rivers it forms sand dunes or sand islands in the swamps. Along Bull Creek it occurs as a bluff or escarpment about 30 or 40 feet above the bed of the river. The surface has the distinctive appearance of Sandhill in the southern part of the area, where it reaches its most typical development. Here dunes and hills 20 to 30 feet higher than the body of the type are found, and the area is more extensive, reaching a maximum width of 2 miles.

The Sandhill has been formed by wind and river action. The deposits were originally laid down when the rivers flowed at much higher levels than at present. Owing to the open structure and the uneven surface, the drainage is excessive.

There is a scattered growth of longleaf pine and blackjack oak on this soil. Practically all the valuable timber has been removed, and only the scrubby growth is left. The agricultural value is very low, and all attempts to cultivate the soil have met with failure. It could be made to produce certain vegetables, and perhaps corn and cotton, with a fair degree of success, if enough organic matter were added to enable the soil to retain some moisture, but this is not at present practicable, and as long as there is plenty of good land unoccupied there is little reason for attempting reclamation. In the lower lying places, where some organic matter has accumulated,

peaches of fairly good quality are produced, but the soil can hardly be recommended for commercial peach growing.

The following table gives the average results of mechanical analyses of the soil and subsoil of this type:

Mechanical analyses of Sandhill.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
21011, 21013.....	Soil.....	1.1	31.2	39.9	26.2	0.4	0.5	0.6
21012, 21014.....	Subsoil.....	.7	29.4	40.0	27.2	.6	.5	1.7

COASTAL BEACH.

The Coastal beach consists of white to light-gray or light-brown fine sand extending to a depth of several feet. A few shell fragments are scattered through the sand. The material is loose and porous.

This type is developed in a strip varying from 200 to 500 yards in width, extending along the entire eastern border of the county, broken in a few places by small inlets. It ranges in elevation from sea level to 15 or 20 feet above. The surface slopes gently toward the water, but becomes somewhat dunelike and uneven a few hundred feet from the coast.

There is a scattered growth of scrubby oak and coarse grasses. This has a tendency to hold the sand in place. The Coastal beach has no agricultural value at present.

TIDAL MARSH.

A small area of Tidal marsh is mapped in the northeastern part of the county, bordering the Coastal beach and the waters of Little River. Another small area occurs in the southeast corner, along Murrell Inlet.

The soil is a bluish-drab loam or silt loam underlain by a bluish or steel-colored clay loam or silty clay loam. In places there are large quantities of shells.

The vegetation consists of a luxuriant growth of salt and marsh grasses, which furnish some grazing. No attempt has been made to reclaim any part of this land which is subject to tidal inundation.

SUMMARY.

Horry County, S. C., lies in the northeastern corner of the State. It is bounded on the north by North Carolina and has a frontage of about 50 miles along the Atlantic Ocean. It is about 90 miles northeast of Charleston, S. C., and approximately 55 miles southwest of Wilmington, N. C. Its area is 1,103 square miles, or 705,920 acres.

The surface of the county is predominantly level to undulating, with a few low ridges and knolls and some large flat areas locally known as pocosons or bays. This topography is typical of the seaward portion of the Coastal Plain. The greater part of the county lies 25 to 30 feet above sea level.

In the northern and western portions surface drainage is fairly well established, but throughout the flatter eastern part there are large areas which are inadequately drained. The greater part of the poorly drained section can be reclaimed by artificial means.

The population of Horry County in 1910 is reported as 26,995, all classed as rural. Conway, the county seat, had a population of 2,200 in that year. It is the chief distributing point for the county. Loris is a thriving tobacco and strawberry market, and Little River is an important distributing point for products shipped by boat on the Atlantic Ocean.

The county lacks adequate transportation facilities, although it is connected by railroad with important markets to the north. Steamers ply on the Waccamaw River, which flows in a general southwesterly direction across the county. Conway furnishes a good local market, and all the railroad towns ship truck, cotton, and tobacco.

The climate of Horry County is comparatively mild. The summers are long and warm, while the winters are comparatively short, with little cold weather of long duration. Proximity to the ocean modifies the climate and makes the summer season more enjoyable than in sections farther west. The annual rainfall amounts to about 50 inches and is well distributed throughout the growing season.

The principal crops of the county are corn, cotton, and tobacco. Corn, which occupies the largest area, is grown principally as a subsistence crop for use on the farm. Cotton and tobacco are the principal money crops. Strawberries are also an important commercial crop locally. Sweet potatoes are grown throughout the county for home consumption and to supply the local markets. The production of Irish potatoes has increased greatly within the last two years. The greater part of the crop is produced on the Bladen soils in the vicinity of Myrtle Beach. Some oats and peanuts are grown, in addition to nearly all varieties of vegetables. Sorghum is planted in all parts of the county, and considerable sirup is manufactured for home consumption.

There are large undeveloped areas of cheap land in Horry County that could easily be brought under cultivation and used for the production of cotton, tobacco, peanuts, and soy beans. Great improvements have been made in the practice of agriculture in recent years in many parts of the county.

The soils of Horry County are similar to those found in the seaward portion of the Coastal Plain throughout the South Atlantic States. They are prevailingly sandy in the surface portion and are underlain by sandy clay or friable clay subsoils. With the exception of the Portsmouth, St. Johns, and Bladen series, the soils are light colored and deficient in organic matter. They are mellow and friable, easily tilled, and lie favorably for the use of all kinds of modern farm machinery. They respond readily to the use of commercial fertilizers or to the addition of barnyard or green manures.

The upland soils are classed in the Norfolk, Ruston, Orangeburg, Dunbar, Coxville, Portsmouth, Bladen, Marlboro, Leon, St. Johns, and St. Lucie series, the terrace soils in the Leaf series, and the first-bottom soils in the Thompson series and Swamp.

The Norfolk, Ruston, and Orangeburg series include the better drained soils of the upland and those on which agriculture is mainly developed.

The Dunbar fine sandy loam and loam grade between the Norfolk and the Coxville. The fine sandy loam is one of the most important soils of the county.

The Coxville series is represented by five types. These soils are uniformly productive and capable of a high state of development with proper drainage. They are important in the agriculture of other counties, but in this county only a small percentage of their area has been reclaimed and farmed.

The Bladen fine sandy loam, loam, and clay are desirable soils when improved, and their natural productiveness warrants the undertaking of drainage works.

The Portsmouth fine sand, fine sandy loam, and loam would support a thriving agriculture if reclaimed and properly handled. At present they are little used except for grazing.

About 75 per cent of the Marlboro very fine sandy loam is cultivated, but it is of small extent.

The Leon fine sand is a soil of low agricultural value occurring in small areas in the northern part of the county.

The St. Johns fine sand occupies a large flat area southeast of Conway. None of it is cultivated.

None of the St. Lucie sand, which is a loose white sand occurring in the northeastern part of the county, is cultivated. Its low organic content and droughtiness make it unsuited for agriculture.

The Leaf fine sandy loam has a comparatively high farming value and is used for all the staple crops except tobacco.

Frequent inundations are responsible for the lack of agricultural development on the Thompson fine sandy loam, which otherwise has fairly good drainage.

Swamp includes first-bottom areas made up of soils of variable character. The type supports a dense growth of large timber, and in its present condition is practically nonagricultural.

Sandhill represents undulating areas of gray sandy soils deposited by wind and river action. The agricultural value of this land is low.

Coastal beach and Tidal marsh are nonagricultural soils occurring along the ocean.

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[PUBLIC RESOLUTION—No. 9.]

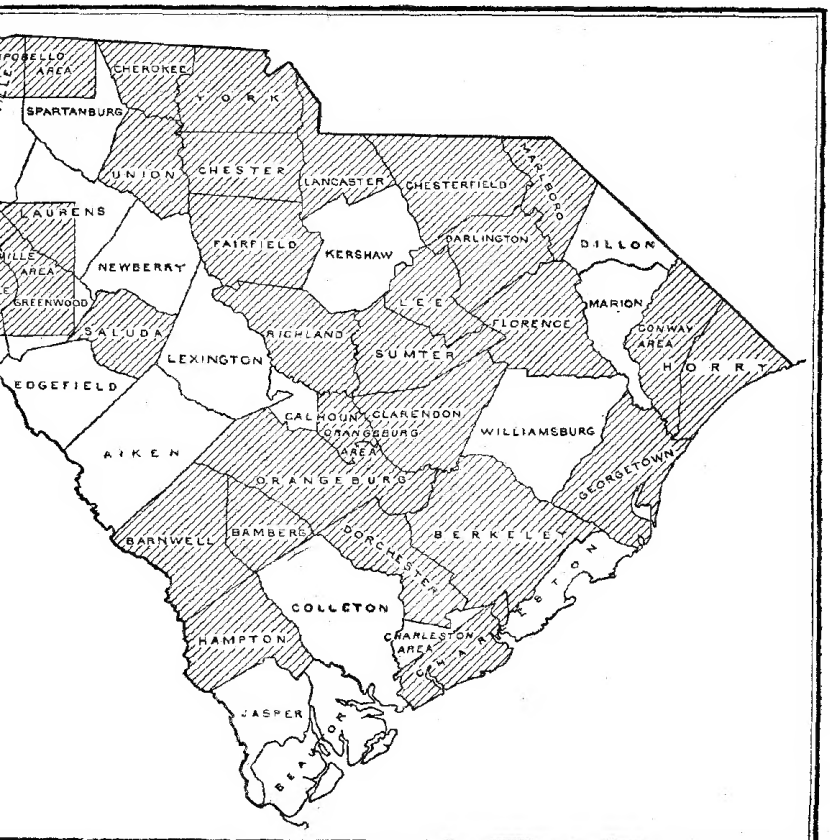
JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following:

That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: *Provided,* That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture.

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils.]



Areas surveyed in South Carolina.

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U S DEPT OF AGRICULTURE
BUREAU OF SOILS
MILTON WHITNEY, CHIEF
CURTIS F MARBUT, IN CHARGE SOIL SURVEY

SOIL MAP

SOUTH CAROLINA
HORRY COUNTY, EASTERN SHEET

LEGEND

- Dunbar fine sandy loam — Ds
- Ruston fine sandy loam — Rf
- Dunbar loam — D
- Marlboro very fine sandy loam — Mv
- Bladen fine sandy loam — Bs
- Coxville fine sandy loam — Cf
- Bladen loam — B
- Coxville very fine sandy loam — Cv
- Bladen clay — Bl
- Coxville loam — C
- Orangeburg fine sandy loam — Of
- Coxville silt loam — Cl
- Norfolk sand — N
- Coxville clay — Cc
- Norfolk fine sand — Nf
- Leaf fine sandy loam — Ll
- Norfolk fine sandy loam — Nl
- St.Johns fine sand — St
- Deep phase — Nl
- Leon fine sand — L
- Portsmouth fine sand — Pf
- Thompson fine sandy loam — Tf
- Portsmouth fine sandy loam — Pl
- St.Lucie sand — Sa
- Portsmouth loam — P
- Swamp — S
- Coastal beach — Cb
- Tidal marsh

CONVENTIONAL SIGNS

CULTURE
(Printed in black)

City or Village, Roads, Buildings, Wharves, Jetties, Breakwater, Levee, Lighthouse, Fort
Secondary roads and Trails
Railroads, Steam and Electric
Bridges, Ferry
R.R. crossings, Tunnel
Ford, Dam
School or Church, Cemeteries
Mine or Quarry, Mine dumps, Made land
Bluff, Escarpment, Rock outcrop, and Triangulation station
Stony and Gravelly areas
Soil boundaries
Boundary lines: State, County
Boundary lines: Land grant, City or village
Boundary lines: Civil township, Reservation
U.S. township and section lines

RELIEF
(Printed in brown or black)

Contours, Depression contours
Prominent Hills, Mountain Peaks
Sand, Wash, and Sand dunes
Shore and Low-water line, Sandbar

DRAINAGE
(Printed in blue)

Streams
Lakes, Ponds, Intermittent lakes
Intermittent streams
Springs, Canals and Ditches, Flumes
Swamp, Salt marshes
Submerged marsh, Tidal flats

The above signs are in current use on the soil maps Variations from this usage appear in some maps of earlier date.

W. Edward Hearn, Inspector, Southern Division
Soils surveyed by B.W. Tillman, in charge,
H.H. Krusekopf, and A.C. Anderson.

Scale 1 inch = 1 mile
1 ½ 0 1 2 3 4 Miles

A. HOEN & CO. BALTO. MD.

Field Operations
Bureau of Soils
1918.

U. S. DEPT. OF AGRICULTURE
BUREAU OF SOILS
MILTON WHITNEY, CHIEF
CURTIS F. MARBUT, IN CHARGE SOIL SURVEY

SOIL MAP

SOUTH CAROLINA
HORRY COUNTY, WESTERN SHEET

79°15' 10' 05' 79°00' 78°55' 34°15' 10' 05' 34°00' 55' 50' 45' 33°40'

LEGEND

Dunbar fine sandy loam — Ds	Portsmouth sand — Ps
Dunbar loam — D	Portsmouth fine sand — Pf
Norfolk sand — N	Portsmouth sandy loam — Py
Norfolk fine sand — Nf	Portsmouth fine sandy loam — Pl
Norfolk sandy loam — Ns	Coxville fine sandy loam — Cf
Norfolk fine sandy loam — Nl	Coxville loam — C
Ruston fine sandy loam — Rf	C Heavy phase
Swamp — S	Coxville silt loam — Cl
Sandhill — Sh	

CONVENTIONAL SIGNS

CULTURE
(Printed in black)

City or Village, Roads, Buildings, Wharves, Jetties, Breakwater, Levee, Lighthouse, Fort.
Secondary roads, and Trails
Railroads, Steam and Electric
Bridges, Ferry
R.R. crossings, Tunnel
Ford, Dam
School or Church, Cemeteries
Mine or Quarry, Mine dumps, Made land
Bluff, Escarpment, Rock outcrop, and Triangulation station
Stony and Gravelly areas
Soil boundaries
Boundary lines
Boundary lines
Boundary lines
U.S. township and section lines

RELIEF
(Printed in brown or black)

Contours, Depression contours
Prominent Hills, Mountain Peaks
Sand, Wash, and Sand dunes
Shore and Low-water line, Sandbar

DRAINAGE
(Printed in blue)

Streams
Lakes, Ponds, Intermittent lakes
Intermittent streams
Springs, Canals and Ditches, Flumes
Swamp, Salt marshes
Submerged marsh, Tidal flats

The above signs are in current use on the soil maps. Variations from this usage appear in some maps of earlier dates.

Soils surveyed by W.J. Latimer and Cornelius Van Duyne in 1909.
Revised by W.E. McLendon and Cornelius Van Duyne in 1919.

1 ½ 0 1 2 3 4 Miles
Scale 1 inch = 1 mile

A. Hoen & Co. Lith. Baltimore, Md.

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